

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. 96-41
NPDES NO. CAG919002
GENERAL
WASTE DISCHARGE REQUIREMENTS
FOR
GROUNDWATER EXTRACTION AND SIMILAR WASTE DISCHARGES
FROM CONSTRUCTION AND REMEDIATION PROJECTS
TO
SURFACE WATERS WITHIN THE SAN DIEGO REGION
EXCEPT FOR SAN DIEGO BAY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board), finds that:

1. On January 28, 1991, this Regional Board adopted Order No. 91-10, NPDES Permit No. CA0108804, "General Waste Discharge Requirements for Groundwater Remediation and Dewatering Waste Discharges to Surface Waters within the San Diego Region, Except for San Diego Bay".
2. 40 CFR 122.28 provides for the issuance of general permits to regulate discharges of waste which result from similar operations, are the same type of waste, require the same effluent limitations, require similar monitoring, and are more appropriately regulated under a general permit rather than individual permits.
3. Existing and proposed discharges of groundwater extraction waste to surface waters in the San Diego Region from construction dewatering, foundation dewatering, and groundwater cleanup projects (collectively groundwater extraction waste discharges): 1) result from similar operations (all involve extraction and discharge of groundwater), 2) are the same type of wastes (all are groundwater containing or potentially containing petroleum hydrocarbons, solvents, or other pollutants), 3) require similar effluent limitations for the protection of the beneficial uses of similar receiving waters, 4) require similar monitoring, and 5) are more appropriately regulated under a general permit rather than individual permits. **This Order establishes a general permit for groundwater extraction waste discharges (GEWD) to all surface waters, other than San Diego Bay under the jurisdiction of this Regional Board. This Order applies to: a) all groundwater extraction waste discharges of greater than 100,000 GPD; and b) groundwater extraction waste discharges of less than 100,000 GPD where the extracted groundwater contains pollutants in excess of the limitations contained in Discharge Specification B.1, B.2, B.3, or B.4 of this Order, or which have the potential to cause a**

pollution, contamination, or nuisance in the receiving water or other waters downstream of the discharge point. Discharges of extracted groundwater to San Diego Bay, are regulated under Order No. 95-25 (NPDES No. CAG919001), General Waste Discharge Requirements for Groundwater Extraction and Similar Waste Discharges to San Diego Bay or Other Conveyance Systems Tributary Thereto.

4. Groundwater extraction and similar wastes may contain pollutants which may be found in groundwaters as a result of decomposition of organic materials (e.g., hydrogen sulfide), leaking underground storage tanks and fuel lines, surface spills, sewage, past use of liquid waste impoundments, or the potential presence of nutrients (phosphorus and nitrogen compounds).
5. The State Water Resources Control Board (SWRCB) adopted a Water Quality Control Policy for Enclosed¹ Bays and Estuaries of California (Bays and Estuaries Policy) on May 16, 1974. The policy established water quality principles, guidelines, effluent quality requirements and prohibitions to govern the disposal of Wastes in the enclosed bays and estuaries of California. Excluding San Diego Bay, enclosed bays and estuaries within the San Diego Region include: Mission Bay, Tijuana River Estuary, Los Penasquitos Lagoon, San Dieguito Lagoon, San Elijo Lagoon, Batiquitos Lagoon, Agua Hedionda Lagoon, Buena Vista Lagoon, Oceanside Harbor, Dana Point Harbor, and Camp Pendleton Harbor (Del Mar Boat Basin).
6. Discharges of extracted groundwater could potentially conflict with Chapter I., Item Nos. C. 1 and 2 (principals for Management of Water Quality in Enclosed Bays and Estuaries) and Discharge Prohibition No. 5 of the Bays and Estuaries Policy if petroleum related compounds or other pollutants are discharged in sufficient concentrations to negatively impact the beneficial uses of the surface water. The discharge of extracted groundwater as regulated by this Order does not conflict with the Water Quality Control Policy for the Enclosed Bays and Estuaries of California provided that each discharge of groundwater extraction waste complies with the Discharge Specifications and Prohibitions of this Order and discharges are limited in volume and duration. Reporting Requirement No. E. 14 of this Order requires any person proposing to discharge to an enclosed bay or estuary to document that alternative disposal sites are not practicable.
7. The SWRCB adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on March 22, 1990. The Ocean Plan identifies the following beneficial uses of state ocean waters to be protected:
 - a. Industrial water supply;
 - b. Navigation;
 - c. Aesthetic enjoyment;

- d. Water contact recreation;
- e. Non-contact water recreation;
- f. Ocean commercial and sport fishing;
- g. Mariculture;
- h. Preservation and enhancement of areas of special biological significance;
- i. Preservation and enhancement of rare and endangered species;
- j. Marine habitat;
- k. Fish migration;
- l. Fish spawning; and
- m. Shellfish harvesting.

In order to protect the above beneficial uses, the Ocean Plan established water quality objectives (for bacteriological, physical, chemical, and biological characteristics, and for radioactivity), general requirements for management of waste discharged to the ocean, quality requirements for waste discharges (effluent quality requirements), discharge prohibitions, and general provisions.

- 8. Beneficial uses of the bays and estuaries in the San Diego Region are similar to those of the Ocean Waters of the State. In order to protect the beneficial uses of the bays and estuaries, discharge specifications and receiving water quality limitations for some parameters, derived from the Ocean Plan, have been included in this Order for discharges to bays and estuaries (when open to the ocean and consisting of marine waters). If a lagoon or estuary is not open to the Pacific Ocean and consists of fresh water, discharges shall comply with the requirements established in this Order for discharges to inland surface waters.
- 9. The Comprehensive Water quality Control Plan Report, San Diego Basin (9), (Basin Plan) was adopted by this Regional Board on September 8, 1994 and subsequently approved by the SWRCB on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and approved by the SWRCB. The Basin Plan designates beneficial uses, narrative and numerical water quality objectives, and prohibitions which are applicable to the groundwater extraction waste discharges regulated under this order.
- 10. The Basin Plan identifies the following beneficial uses of the surface waters in the San Diego Region (not all surface waters have all of the beneficial uses listed below):
 - a. Municipal and domestic supply;
 - b. Agricultural supply;
 - c. Industrial service supply;
 - d. Industrial process supply;
 - e. Groundwater recharge;
 - f. Freshwater replenishment;
 - g. Navigation;

- h. Hydropower generation;
 - i. Contact water recreation;
 - j. Non-contact water recreation;
 - k. Commercial and sport fishing;
 - l. Warm fresh-water habitat;
 - m. Cold freshwater habitat;
 - n. Preservation of biological habitats of special significance;
 - o. Inland saline water habitat;
 - p. Wildlife habitat;
 - q. Rare, threatened, or endangered species;
 - r. Marine habitat;
 - s. Migration of aquatic organisms;
 - t. Spawning, reproduction, and/or early development;
 - u. Shellfish harvesting;
 - v. Estuarine habitat; and
 - w. Aquaculture.
11. The Basin Plan contains prohibitions applicable to surface waters. The applicable prohibitions of the Basin Plan have been incorporated herein.
12. In order to protect the beneficial uses of receiving waters from excessive concentrations of pollutants as a result of groundwater extraction waste discharges, **this Order does not provide for a mixing zone or a zone of initial dilution except when the discharge is to the surf zone. Discharges to a surf zone are assumed to have an initial dilution factor of three.** In order to minimize potential impacts of discharges of groundwater containing pollutants on the beneficial uses of surface waters, this Order contains effluent pollutant concentration limitations based on criteria for the protection of aquatic species, the protection of human health from consumption of aquatic organisms, maximum contaminant levels (MCL) for potable drinking water supplies, and/or best available technology economically achievable (BAT)² for the removal of organic pollutants commonly found in petroleum-and solvent-contaminated groundwaters. Effluent limitations for volatile and base/neutral compounds are equal to the practical quantitation level (PQL) if the PQL is lower than water quality objectives for the protection of beneficial uses (such compounds will essentially be nondetectable in discharges of groundwater extraction wastes). When determining compliance based on a single sample, with a single effluent limitation which applies to a group of chemicals (eg. PCB's) concentrations of individual members of the group may be considered to be zero if the analytical response for individual chemicals falls below the MDL for that parameter.
13. Any discharge of untreated groundwater to a surface water threatens to cause or contribute to excursions above narrative water quality objectives contained in the Ocean Plan and Basin Plan as a result of the potential discharge of petroleum related compounds, solvents, metals. On May 26, 1989, the United States Environmental Protection

Agency (USEPA) enacted revisions to 40 CFR 122. When a proposed discharge of a compound or chemical threatens to cause or contribute to an excursion above a State narrative water quality standard and a numeric water quality standard for the specific chemical has not been established, the NPDES revisions require the Regional Board to 1) establish an effluent limitation using a proposed State Water Quality regulation interpreting its narrative water quality objective or standard or an explicit State policy or objective which will protect and maintain water quality and designated beneficial uses of the receiving water, 2) establish effluent limitations on a case-by-case basis, using USEPA's water quality criteria published under 307(a) of the federal Clean Water Act, or 3) establish effluent limitations on an indicator³ parameter for the pollutants of concern.

14. Since water quality criteria for many of the petroleum hydrocarbon compounds have not been proposed or established by the SWRCB or USEPA, this Order requires monitoring groundwater discharged to surface waters using "indicator constituents"³ for petroleum related compounds. This Order establishes effluent limitations and monitoring requirements for BTEX and TPH which will ensure that volatile petroleum related compounds⁴ will be removed from the waste stream. This Order also establishes effluent limitations and monitoring requirements for indicator constituents of diesel fuels (TPH - diesel)⁵ commonly found in polluted groundwaters.
15. It has been demonstrated that volatile (e.g., benzene, toluene, ethylbenzene, xylene, etc.) and many other organic pollutants in groundwater can be reduced to less than current analytical detection limits (0.5 to 10 micrograms per liter ($\mu\text{g/L}$) in groundwater using available standard treatment technologies⁶. Section 402(a)(1) of the Clean Water Act authorizes the issuance of best available technology (BAT)² effluent limitations in NPDES permits using best professional judgement. Thus, best available technology economically achievable for the removal of organic compounds is the basis for effluent limitations for BTEX and other volatile hydrocarbons, and base/neutral compounds (volatile hydrocarbons, and base/neutral compounds are listed in 40 CFR 136) in the Discharge Specifications B.1. of this Order.
16. In establishing effluent limitations based on BAT, the Regional Board has taken into consideration the following factors:
 - a. The appropriate technology for the category or class of which the discharger is a member;
 - b. The age of equipment and facilities involved;
 - c. The process employed;
 - d. The engineering aspects of the application of various types of control techniques;
 - e. Process changes;
 - f. The cost of achieving such effluent reduction;
 - g. Non-water quality environmental impact (including energy

requirements); and

- h. Known and potential groundwater contaminants in the San Diego region.

17. **The daily maximum discharge flowrate limitation for each discharge will be specified in the discharge authorization letter from the Executive Officer.** Mass emission rate limitations shall be determined using the authorized discharge flowrate and effluent concentration limitations specified in Discharge Specifications B.1, B.2., B.3, and B.4 of this Order.
18. Pursuant to 40 CFR 131.12 and State Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (collectively "antidegradation policies"), the Regional Board shall ensure that any increase in pollutant loading to a receiving water meets the requirements stated in the foregoing policies. At a minimum, permitting actions shall be consistent with the following:
 - a. Existing instream water uses and the level of water quality necessary to protect existing beneficial uses shall be maintained and protected;
 - b. Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, the quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the water are located;
 - c. Where high quality waters constitute an outstanding national resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected; and
 - d. In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Clean Water Act.
19. The Regional Board, in establishing the requirements contained herein, has taken into consideration the requirements of the State and Federal "antidegradation" policies and has determined that:
 - a. The requirements, conditions, Reporting Requirements No. 14 of this Order, and effluent limitations established in this Order

for proposed discharges of groundwater to surface waters require that the existing beneficial uses and quality of the proposed receiving waters be maintained and protected;

- b. Provided that proposed projects requiring groundwater extraction are in accordance with approved plans, ordinances, and codes of the local governments, allowing groundwater extraction waste discharges to surface waters is often necessary for groundwater remediation or to accommodate economic development or infrastructure repair or replacement important to the people of the communities of the San Diego region;
- c. No surface waters covered under the terms and conditions of this Order have been designated an outstanding national resource water by the SWRCB. However, Heisler Park Ecological Reserve, located in coastal waters near the City of Laguna Beach, the San Diego-La Jolla Ecological Reserve and the San Diego Marine Life Refuge, located in coastal waters near La Jolla, a community of the City of San Diego, have been designated Areas of Special Biological Significance (ASBS) by the SWRCB. The Ocean Plan contains the following prohibition applicable to ASBS:

" Waste shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas."

This Order prohibits the discharge of extracted groundwater to the above ASBS.

- d. Thermal discharges potentially impairing water quality are not authorized under the terms and conditions of this Order, thus, Section 316 of the Clean Water Act is not applicable.
- 20. Discharge criteria establishes under Sections 301, 302, 304, 306, 307, and 403 of the Clean Water Act (CWA), as amended (33 U.S.C. 1251 et seq.), are applicable to discharges of groundwater extraction waste.
 - 21. **Pursuant to Section 402 of the CWA, and amendments thereto, this Order shall serve as a general NPDES permit for groundwater extraction waste discharges to surface waters, other than San Diego Bay or tributaries thereto, within the San Diego region for those so authorized⁷ by the Executive Officer.**
 - 22. The Regional Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:
 - a. Beneficial uses to be protected and the quality objectives reasonably required for that purpose;

- b. Other waste discharges;
 - c. The need to prevent nuisance;
 - d. Past, present, and probable future beneficial uses of the waters under consideration;
 - e. Environmental characteristics of the waters under consideration;
 - f. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
 - g. Economic considerations;
 - h. The need for developing housing within the region; and
 - i. The need to develop and use recycled water.
23. The issuance of this general permit for the discharge of groundwater extraction waste to surface waters in the San Diego region is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (Public Resource Code, Division 13, Chapter 3, Section 21000 et seq.) in accordance with the California Water Code, Section 13389.
24. The Regional Board has notified all known interested parties of its intent to issue a general NPDES permit for the discharge of groundwater extraction waste to surface waters in the region.
25. The Regional Board has, at a public meeting, heard and considered all comments pertaining to the discharge of groundwater extraction waste to surface waters in the region.
26. All groundwater extraction waste discharges currently regulated by Regional Board Order No. 91-10 shall be regulated under the terms and conditions of this Order.
27. This Order does not apply to discharges regulated by a construction, industrial, or municipal, stormwater permit.
28. This Order does not preempt or supersede the authority of other State or local agencies to prohibit, restrict, or control the discharge of groundwater extraction waste discharges from facilities subject to this permit in any manner subject to their authority.
29. This Order does not apply to small dewatering sumps necessary to protect public utilities (e.g., electrical, telephone, municipal, sewer pump stations, and other utilities vital to the public) and which have intermittent discharges.

IT IS HEREBY ORDERED, that each authorized discharger⁷ (hereinafter discharger), in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the provisions of the Clean Water Act and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of wastes to areas designated as being of special biological significance by the SWRCB is prohibited. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.
2. The addition of pollutants to extracted groundwater to be discharged to surface waters is prohibited. The only exception to this prohibition is that chemicals may be added to extracted groundwater to control biofouling in treatment systems, provided that extracted groundwater discharged to surface waters meets the effluent limitations for such chemicals established by this Order and in the discharge authorization letter issued by the Executive Officer.
3. Discharges of extracted groundwater to surface waters from permanent groundwater extraction operations in basins with designated beneficial uses of industrial, agricultural, or municipal and domestic supply are prohibited unless such extracted groundwater is used beneficially. If the user of such extracted groundwater wishes to discharge to surface waters, it shall be the responsibility of the user to obtain an individual NPDES Permit for the discharge.
4. The discharge of groundwater extraction waste to enclosed bays, lagoons, and estuaries, or tributaries thereto, is prohibited unless the discharger demonstrates to the satisfaction of the Executive Officer that alternative disposal sites (e.g., surf zone) are not practicable as required in Reporting Requirements No. E. 14.
5. The discharge of groundwater extraction waste to any surface water, from a groundwater dewatering project after the date of completion of construction of structures requiring groundwater extraction, or from a groundwater remediation operation after the date the groundwater has been remediated to the satisfaction of the Executive Officer, is prohibited.
6. The discharge of groundwater in excess of the flowrate specified in each discharger's authorization letter from the Executive Officer is prohibited unless the discharger obtains a revised discharge authorization letter authorizing an increased flowrate.
7. No individual pesticide or combination of pesticides shall be present in the water column, sediments or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels which will bioaccumulate in aquatic organisms to levels which are harmful to human health, wildlife or aquatic organisms.

Water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the maximum

contaminant levels specified in California Code of Regulations, Title 22, Table 64444-A of Section 64444 (Organic Chemicals). (See Basin Plan Chapter 3-13).

8. Compliance with the waste discharge prohibitions contained in the Basin Plan and listed in Attachment 1 hereto is required as a condition of this Order.

B. DISCHARGE SPECIFICATIONS⁸

1. DISCHARGES TO BAYS AND HARBORS

The discharge of groundwater extraction waste to Mission Bay, Oceanside Harbor, Del Mar Boat Basin, or Dana Point Harbor shall not contain pollutants in excess of the following effluent limitations:

Constituent	Unit	6-Month Median	30-day Average	Daily Maximum	Instantaneous Maximum	Basis ⁹
Settleable Solids	ml/L	---	0.1	---	0.2	BPJ ¹⁰
Total Suspended Solids	mg/L	---	30	---	50	"
Hydrogen Sulfide	µg/L	---	2	4	10	BPJ ¹⁰
Total Residual Chlorine (TRC) ¹²	µg/L	2	---	8	60	OP ¹¹
Ammonia(as nitrogen)	ug/L	600	---	2,400	6,000	"
pH	Units		Within the limits of 6.0 to 9.0 at all times.			OP ¹¹
<i>Benzene</i>	<i>µg/L</i>	---	---	---	5	BPJ/BAT ¹³
<i>Ethylbenzene</i>	<i>µg/L</i>	---	---	---	5	" "
<i>Toluene</i>	<i>µg/L</i>	---	---	---	5	" "
<i>Xylene</i>	<i>µg/L</i>	---	---	---	5	" "
<i>Total Petroleum Hydrocarbons</i>	<i>mg/L</i>	---	---	---	0.5	" "
Arsenic	µg/L	8	---	32	80	OP ¹¹
Cadmium	µg/L	1	---	4	10	"
Chromium (hexavalent) ¹⁴	µg/L	2	---	8	20	"
Copper	µg/L	3	---	12	30	"
Lead	µg/L	2	---	8	20	"
Mercury	µg/L	0.04	---	0.16	0.4	"
Nickel	µg/L	5	---	20	50	"

Silver	µg/L	0.7	---	2.8	7	"
Zinc	µg/L	20	---	80	200	"
Cyanide	µg/L	1	---	4	10	"
Phenolic Compounds (non-chlorinated)	µg/L	30	---	120	300	"
Chlorinated Phenolics	µg/L	1	---	4	10	"
1,1,2,2-tetrachloroethane	µg/L	---	11	---	---	EBE
tributyltin	ug/L	---	.005	---	---	"
1,1,1-trichloroethane	µg/L	---	11	---	---	"
1,1,2-trichloroethane	µg/L	---	42	---	---	"
carbon tetrachloride	µg/L	---	3.8	---	---	"
PCBs ¹⁵	ng/L	---	0.019	---	---	"
tetrachloroethylene(PCE)	µg/L	---	6.9	---	---	"
trichloroethylene(TCE)	µg/L	---	92.0	---	---	"
vinyl chloride	µg/L	---	34.0	---	---	"
Acute Toxicity	TUa	---	---	---	0.59	BPJ ¹⁰
Chronic Toxicity	TUc	---	---	1	---	OP ¹¹
Base/Neutrals ¹⁶	µg/L	---	---	---	10	BPJ/BAT ¹³
Dissolved Oxygen	mg/L	Shall not be less than 5 at anytime.				BPJ ¹⁰
Turbidity	NTU	Shall not exceed the turbidity of the receiving water.				"
Total Coliform	MPN/ml					1000
Fecal Coliform	MPN/ml					200

Note:ml/L = milliliters per liter, mg/L = milligrams per liter

µg/L = micrograms per liter, ng/L = nanograms per liter

pg/L = picograms per liter, TUa = acute toxicity units

Tuc = chronic toxicity units, NTU = Nephelometric Turbidity Units

2. DISCHARGES TO LAGOONS/ESTUARIES

Groundwater extraction discharges to the saline¹⁷ lagoons and estuaries of the region **shall not contain pollutants in excess of the following effluent limitations:**

Constituent	Unit	6-Month Median	30-day Average	Daily Maximum	Instantaneous Maximum	Basis ⁹
		1.0	---	2.0	Total Nitrogen ¹⁸ BPJ ¹⁰	mg/L
Total Phosphorus ¹⁸	mg/L	---	0.1	---	0.2	"
Settleable Solids	ml/L	---	0.1	---	0.2	"
Total Suspended Solids	mg/L	---	30	---	50	"
Hydrogen Sulfide	µg/L	---	2	4	10	"
Total Residual	µg/L	2	---	8	60	OP ¹¹

Chlorine (TRC) ¹²						
Ammonia(as nitrogen)	ug/L	600	---	2,400	6,000	"
pH	Units		Within the limits of 7.0 to 8.5 at all times.			
<i>Benzene</i>	$\mu\text{g/L}$	---	---	---	5	BPJ/BAT ¹³
<i>Ethylbenzene</i>	$\mu\text{g/L}$	---	---	---	5	" "
<i>Toluene</i>	$\mu\text{g/L}$	---	---	---	5	" "
<i>Xylene</i>	$\mu\text{g/L}$	---	---	---	5	" "
<i>Total Petroleum Hydrocarbons</i>	mg/L	---	---	---	0.5	" "
Arsenic	$\mu\text{g/L}$	8	---	32	80	OP ¹¹
Cadmium	$\mu\text{g/L}$	1	---	4	10	"
Chromium (hexavalent) ¹⁴	$\mu\text{g/L}$	2	---	8	20	"
Copper	$\mu\text{g/L}$	3	---	12	30	"
Lead	$\mu\text{g/L}$	2	---	8	20	"
Mercury	$\mu\text{g/L}$	0.04	---	0.16	0.4	"
Nickel	$\mu\text{g/L}$	5	---	20	50	"
Silver	$\mu\text{g/L}$	0.7	---	2.8	7	"
Zinc	$\mu\text{g/L}$	20	---	80	200	"
Cyanide	$\mu\text{g/L}$	1	---	4	10	"
Phenolic Compounds (non-chlorinated)	$\mu\text{g/L}$	30	---	120	300	"
Chlorinated Phenolics	$\mu\text{g/L}$	1	---	4	10	"
1,1,2,2-tetrachloroethane	$\mu\text{g/L}$	---	11	---	---	EBE
tributyltin	ug/L	---	.005	---	---	"
1,1,1-trichloroethane	$\mu\text{g/L}$	---	11	---	---	"
1,1,2-trichloroethane	$\mu\text{g/L}$	---	42	---	---	"
carbon tetrachloride	$\mu\text{g/L}$	---	3.8	---	---	"
PCBs ¹⁵	ng/L	---	0.019	---	---	"
tetrachloroethylene(PCE)	$\mu\text{g/L}$	---	6.9	---	---	"
trichloroethylene(TCE)	$\mu\text{g/L}$	---	92.0	--	---	"
vinyl chloride	$\mu\text{g/L}$	---	34.0	---	---	"
Acute Toxicity	TUa	---	---	---	0.59	BPJ ¹⁰
Chronic Toxicity	TUc	---	---	1	---	OP ¹¹
Base/Neutrals	$\mu\text{g/L}$	---	---	---	10	" "
Dissolved Oxygen	mg/L	Shall not be less than 5 at anytime.				BPJ ¹⁰
Turbidity	NTU	Shall not exceed the turbidity of the receiving water.				BPJ ¹⁰
Total Coliform	MPN/ml			1000	"	
Fecal Coliform	MPN/ml			200	"	

3. DISCHARGES TO THE SURF ZONE²⁰

The discharge of groundwater extraction waste to the surf zone shall not contain pollutants in excess of the following effluent limitations:

Constituent	Unit	6-Month Median	30-day Average	Daily Maximum	Instantaneous Maximum	Basis ⁹
	Settleable Solids ²		ml/L BPJ ¹⁰	---	1	---
Total Suspended Solids	mg/L	---	60	---	100	"
Hydrogen Sulfide	µg/L	---	8	16	40	"
Total Residual Chlorine (TRC) ¹²	µg/L	8	---	32	240	OP ¹¹
Ammonia(as nitrogen)	ug/l	2400	---	9600	24000	"
pH	units	Within the limits of 6.0 to 9.0 at all times.				"
<i>Benzene</i>	µg/L	---	---	---	5	BPJ/BAT ¹³
<i>Ethylbenzene</i>	µg/L	---	---	---	5	" "
<i>Toluene</i>	µg/L	---	---	---	5	" "
<i>Xylene</i>	µg/L	---	---	---	5	" "
<i>Total Petroleum Hydrocarbons</i>	mg/L	---	---	---	0.5	" "
Arsenic	µg/L	23	---	119	311	OP ¹¹
Cadmium	µg/L	4	---	16	40	"
Chromium (hexavalent) ¹⁴	µg/L	8	---	32	80	"
Copper	µg/L	6	---	25	114	"
Lead	µg/L	8	---	32	80	"
Mercury	µg/L	0.16	---	0.64	1.6	"
Nickel	µg/L	20	---	80	200	"
Silver	µg/L	2.32	---	10.7	28	"
Zinc	µg/L	56	---	296	776	"
Cyanide	µg/L	4	---	16	40	"
Phenolic Compounds (non-chlorinated)	µg/L	120	---	480	1200	"
Chlorinated Phenolics	µg/L	4	---	16	40	"
<i>1,1,2,2-tetrachloroethane</i>	µg/L	---	---	---	5	BPJ/BAT ¹³
<i>tributyltin</i>	ng/L	---	5.6	---	---	OP ¹¹
<i>1,1,1-trichloroethane</i>	µg/L	---	---	---	---	BPJ/BAT ¹³
<i>1,1,2-trichloroethane</i>	µg/L	---	---	---	---	" "
<i>carbon tetrachloride</i>	µg/L	---	3.6	---	---	OP ¹¹
PCBs ¹⁵	ng/L	---	0.019	---	---	"
<i>tetrachloroethylene</i>	µg/L	---	---	---	5	BPJ/BAT ¹³
<i>trichloroethylene</i>	µg/L	---	---	---	5	"
<i>Vinyl chloride</i>	µg/L	---	---	---	5	"
Acute Toxicity	TUa	---	1.5	---	2.5	OP ¹¹
Chronic Toxicity	TUc	---	---	1	---	"
Base/Neutrals ¹⁶	µg/L	---	---	---	10	BPJ/BAT ¹³

outside of
the surf
zone

Total
ColiformMP
N/ml
1000 "

Fecal Coliform		MPN/ml			200	"	
Selenium	μg/L	60	---	240	600	OP ¹¹	
Endosulfan	ng/L	36	---	72	108	"	
Endrin	ng/L	8	---	16	24	"	
HCH ³⁰	ng/L	16	---	32	48	"	
acrolein	μg/L	---	---	---	10	BPJ/BAT ¹³	
antimony	mg/L	---	4.8	---	---	OP ¹¹	
bis(2-chloroethoxy)							
methane	μg/L	---	---	---	10	BPJ/BAT ¹³	
bis(2-chloroisopropyl)							
ether	μg/L	---	---	---	10	"	"
chlorobenzene	μg/L	---	---	---	5	"	"
chromium (III)	mg/L	---	760	---	---	OP ¹¹	
di-n-butyl phthalate	μg/L	---	---	---	10	BPJ/BAT ¹³	
dichlorobenzenes ³¹	μg/L	---	---	---	---	"	
1,1-dichloroethylene	μg/L	---	---	---	5	"	"
diethyl phthalate	μg/L	---	---	---	10	"	"
dimethyl phthalate	μg/L	---	---	---	10	"	"
4,6-dinitro-2-methylphenol	μg/L	---	---	---	10	"	"
2,4-dinitrophenol	μg/L	---	---	---	10	"	"
fluoranthene	μg/L	---	---	---	10	"	"
hexachlorocyclopentadiene	μg/L	---	---	---	10	"	"
isophorone	μg/L	---	---	---	10	"	"
nitrobenzene	μg/L	---	---	---	10	"	"
thallium	μg/L	---	56	---	---	OP ¹¹	
acrylonitrile	μg/L	---	0.40	---	---	"	
aldrin	ng/L	---	0.09	---	---	"	
benzidine	ng/L	---	0.28	---	---	"	
beryllium	ng/L	---	132	---	---	"	
bis(2-chloroethyl) ether	μg/L	---	0.18	---	---	"	
bis(2-ethylhexyl)							
phthalate	μg/L	---	---	---	10	BPJ/BAT ¹³	

chlordan ³²	ng/L	---	0.09	---	---	OP
chloroform	μg/L	---	0.52	---	---	BPJ/BAT ¹³
DDT ³³	μg/L	---	---	---	10	BPJ/BAT ¹³
3,3-dichlorobenzidine	ng/L	---	32.4	---	---	OP ¹¹
1,2-dichloroethane	μg/L	---	---	---	5	BPJ/BAT ¹³
dichloromethane	μg/L	---	---	---	10	" "
1,3-dichloropropene	μg/L	---	---	---	5	" "
Dieldrin	ng/L	---	0.04	---	---	OP ¹¹
2,4-dinitrotoluene	μg/L	---	2.6	---	---	"
1,2-diphenylhydrazine	μg/L	---	0.16	---	---	"
halomethanes ³⁴	μg/L	---	---	---	5	BPJ/BAT ¹³
heptachlor ³⁵	ng/L	---	0.72	---	---	OP ¹¹
hexachlorobenzene	ng/L	---	0.21	---	---	"
hexachlorobutadiene	μg/L	---	---	---	5	BPJ/BAT ¹³
hexachloroethane	μg/L	---	2.5	---	---	OP ¹¹
N-nitrosodimethylamine	μg/L	---	7.3	---	---	"
N-nitrosodiphenylamine	μg/L	---	2.5	---	---	"
PAHs ³⁶	ng/L	---	8.8	---	---	"
TCDD equivalents	pg/L	---	0.004	---	---	"
toxaphene	ng/L	---	0.21	---	---	"
2,4,6-trichlorophenol	μg/L	---	0.29	---	---	"

4. DISCHARGES TO INLAND SURFACE WATERS^a

The discharge of groundwater extraction waste to inland surface waters shall not contain pollutants in excess of the following effluent limitations:

GENERAL CONSTITUENTS

Constituent	Unit	30-day Average	Daily Maximum	Instantaneous Maximum	Basis ⁹	
	Settleable Solids	ml/L	0.1	---	0.2	
	BPJ ¹⁰					
Total Suspended Solids	mg/L	30	---	50	"	

^a

If the groundwater extraction waste is discharged to an inland surface water tributary to a bay, harbor, lagoon or estuary and the effluent concentration limitation for discharges to bays and harbors or lagoons and estuaries is more stringent than the effluent concentration limitation for discharges to inland surface waters, the discharge shall not contain pollutants in excess of the effluent concentration limitation for a discharge to bays and harbors or lagoons and estuaries. (The discharge shall comply with the more stringent of the two effluent pollutant concentration limitations.)

Percent Sodium	%	---	---	60	"
Total Nitrogen ¹⁸	mg/L	1.0	---	2.0	"
Total Phosphorus ¹⁸	mg/L	0.1	---	0.2	"
Substances	mg/L	---	---	Methylene Blue Active 0.5 BP ¹⁹	
Turbidity	NTU	Shall not exceed the ambient turbidity of the surface water at any time.			
Fluoride	mg/L	---	---	1.0	BPJ ¹⁰ BP ¹⁹
Hydrogen Sulfide	μg/L	2	4	10	BPJ ¹⁰
Total Residual Chlorine (TRC) ¹²	μg/L	2	8	10	BPJ ¹⁰
pH	Units	Within the limits of 6.5 and 8.5 at all times.			BP ¹⁹
Acute Toxicity	TUa	---	---	0.59	BPJ ¹⁰
Chronic Toxicity	TUC	---	1	---	"
Dissolved Oxygen	mg/L	Shall not be less than 5.0 at any time in waters with designated warm fresh-water habitat beneficial uses or less than 6.0 in waters with cold fresh water habitat beneficial uses. BP ¹⁹			
Total Coliform	MPN/ml			1000	"
Fecal Coliform	MPN/ml			200	"

VOLATILE CONSTITUENTS:

— Beneficial Use:
MUNICIPAL
SUPPLY²¹

Constituent	Unit	Instantaneous Maximum	Basis ⁹
— Benzene DOHS ²² μg/L 1.0			
Carbon tetrachloride	μg/L	0.4	EPA
Ethylbenzene	μg/L	5	BPJ/BAT ¹³
1,1,2,2-Tetrachloroethane	Non-detectable		
Tetrachloroethylene	μg/L	4	DOHS ²²
Toluene	μg/L	5	BPJ/BAT ¹³
1,1,2-Trichloroethane	μg/L	0.6	EPA
Trichloroethylene	μg/L	3	"
Vinyl Chloride	μg/L	0.5	DOHS ²²
Xylene	μg/L	5	BPJ/BAT ¹³
Total Petroleum Hydrocarbons	mg/L	0.5	" "

Constituent	Unit	NON-MUNICIPAL WATERS		
		Instantaneous Maximum	Basis ⁹	
			— Benzene BPJ/BAT ¹³	μg/L 5
Carbon tetrachloride	μg/L	5	"	"
Ethylbenzene	μg/L	5	"	"
1,1,2,2-Tetrachloro- ethane	Non-detectable ⁴⁴			
Tetrachloroethylene	μg/L	5	"	"
Toluene	μg/L	5	"	"
1,1,2-Trichloroethane	μg/L	5	"	"
Trichloroethylene	μg/L	5	"	"
Vinyl Chloride	μg/L	5	"	"
Xylene	μg/L	5	"	"
Total Petroleum Hydrocarbons	mg/L	0.5	BPJ/BAT ¹³	

EXTRACTABLE COMPOUNDS:

Beneficial Use:

MUNICIPAL SUPPLY

Constituent	Unit	Instantaneous Maximum	Basis ⁹	
				Chlorinated Phenolics μg/L DOHS ²²
PCBs	ng/L	0.08	"	
Base/Neutral Compounds ¹⁶	μg/L	10	BPJ/BAT ¹³	

NON-MUNICIPAL WATERS

Constituent	Unit	Instantaneous Maximum	Basis ⁹
PCBs	ng/L	0.08	Chlorinated Phenolics BPJ/BAT ¹³ EPA
Base/Neutral Compounds ¹⁶	μg/L	10	BPJ/BAT ¹³

METALS/METALLOID CONSTITUENTS:

Constituent	Unit	Average ²³	Maximum	4-Day Instantaneous Maximum	Daily Basis ⁹
Beryllium	ng/L	---	---	5.3	"
Cadmium	µg/L	(a)	---	(a)	"
Chromium (III) ¹⁴	mg/L	---	---	170	"
Chromium (hexavalent) ¹⁴	µg/L	11	---	16	"
Copper	µg/L	(b)	---	(b)	"
Cyanide	µg/L	4.2	---	22	"
Iron**	mg/L	---	---	0.3	"
Lead	µg/L	(c)	---	(c)	"
Manganese**	mg/L	---	---	0.05	"
Mercury	µg/L	0.012	---	0.144	"
Nickel	µg/L	(d)	---	(d)	"
Silver	µg/L	(e)	---	(e)	"
Zinc	µg/L	---	47	200	"
Thallium	µg/L	---	---	13	"

(a) - (e) Effluent metal concentrations for these metals are a function of the receiving water hardness and the effluent limits shall be calculated as follows:

	4-Hour Average (µg/L)	Instantaneous Maximum (µg/L)*
(a) Cadmium:	$e^{(0.7852[\ln(\text{hardness})]-3.49)}$	$e^{(1.128[\ln(\text{hardness})]-3.828)}$ or 10
(b) Copper:	$e^{(0.8545[\ln(\text{hardness})]-1.465)}$	$e^{(0.9422[\ln(\text{hardness})-1.464]}$
(c) Lead:	$e^{(1.273[\ln(\text{hardness})]-4.705)}$	$e^{(1.273[\ln(\text{hardness})-1.46]}$ or 50
(d) Nickel:	$e^{(0.76[\ln(\text{hardness})]+1.06)}$	$e^{(0.76[\ln(\text{hardness})+4.02]}$ or 13.4
(e) Silver:	---	$e^{(1.72[\ln(\text{hardness})-6.52]}$ or 50

* Where two values are given for an instantaneous maximum limitation, the effluent limitation shall be the lesser of the two values for discharges to waters designated potable and municipal supply.

**For the Mission San Diego (7.11) and a portion of Sycamore Canyon (7.12) Hydrologic Subareas, the effluent limitation for Iron shall be 1.0 mg/L and the effluent limitation for manganese shall be 1.0 mg/l. Sycamore Canyon Subarea, a portion of the Santee Hydrographic Subarea, includes the watersheds of the following north-south trending canyons: Oak Creek, Spring Canyon, Little Sycamore Canyon, Quail Canyon, and Sycamore Canyon. The Sycamore Canyon Subarea extends eastward from the Mission San Diego HSA to the confluence of the San Diego River and Forester Creek, immediately south of the Santee Lakes.

- Groundwater extraction waste discharged to surface waters must be essentially free of:

- a. Material that is floatable or will become floatable upon discharge.
 - b. Settleable material or substances that form sediments which degrade²⁴ benthic communities or other aquatic life.
 - c. Substances which will accumulate to toxic levels in aquatic sediments or biota.
 - d. Substances that significantly²⁵ decrease the natural light to benthic communities and other aquatic life.
 - e. Materials that result in aesthetically undesirable discoloration of surface waters.
6. Groundwater extraction waste discharged to surface waters shall not cause natural water quality conditions to be altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.
 7. Groundwater extraction waste discharged to surface waters shall be discharged in such a manner as to provide maximum protection to aquatic environments.
 8. Groundwater extraction waste that contains pathogenic organisms or viruses shall be discharged a sufficient distance from shellfishing and water-contact sports areas to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area must be provided. Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard shall be used.

C. RECEIVING WATER LIMITATIONS²⁶

The discharge of extracted groundwater from any site shall not, separately or jointly with any other discharge, cause violations of the following water quality objectives in surface waters:

1. Bacterial Characteristics of Marine Waters(Surf Zone) Including Bays, Harbor, Lagoons and Estuaries
 - (a) Water-Contact Standards

Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water-contact sports, as determined by the Regional Board, but including all kelp beds²⁷, the following bacterial objectives shall be maintained throughout the water column:

- (1) Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20 percent of the sample at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).
- (2) The fecal coliform density based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 200 per 100 ml nor shall more than 10 percent of the total samples during any 60-day period exceed 400 per 100 ml.

The "Initial Dilution"²⁸ Zone" of wastewater outfalls shall be excluded from designation as "kelp beds" for purposes of bacterial standards. Adventitious assemblages of kelp plants on waste discharge structures (e.g. outfall pipes and diffusers) do not constitute kelp beds for purposes of bacterial standards.

(b) Shellfish Harvesting Standards²⁹

At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 320 per 100 ml.

2. Bacterial Characteristics of Inland Surface Waters(fresh)

(a) Water-Contact and Non-Contact Standards

In waters designated for contact recreation (REC1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 per 100 ml, nor shall more than 10 percent of total samples taken during any 30-day period exceed 400 per 100 ml.

In waters designated for noncontact recreation (REC2), and not designated for contact recreation (REC1), the average fecal coliform concentration for any 30-day period, shall not exceed 2,000 per 100 ml nor shall more than 10 percent of samples collected during any 30-day period exceed 4,000 per 100 ml.

In bays and estuaries, the most probable number of coliform organisms in the upper 60 feet of the water column shall be less than 1,000 per 100 ml provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml, and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml.

(b) Shellfish²⁹

At all areas where shellfish may be harvested for human consumption (SHELL), the median total coliform concentration for any 30-day period shall not exceed 70 per 100 ml nor shall more than 10 percent of the samples collected during any 30-day period exceed 230 per 100 ml for a five-tube decimal dilution test or 330 per 100 ml when a three-tube decimal dilution test is used.

3. Physical Characteristics

- (a) Floating particulates and grease and oil shall not be visible.
- (b) The discharge of waste shall not cause aesthetically undesirable discoloration of the surface water.
- (c) Natural light shall not be significantly²⁵ reduced.
- (d) The rate of deposition of solids and the

characteristics of inert solids in receiving water sediments shall not be changed such that benthic communities are degraded²⁴.

- (e) Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

4. Chemical Characteristics

- a. The dissolved oxygen concentration of ocean waters shall not at any time be depressed more than 10 percent from that which occurs naturally, as a result of the discharge of oxygen demanding waste materials. In bays and lagoons, the annual dissolved oxygen concentration shall not be less than 7.0 mg/L nor shall the minimum dissolved oxygen concentration be reduced below 5.0 mg/L at any time. In inland surface waters, the annual mean dissolved oxygen concentration shall not be less than 5 mg/L more than 10 percent of the time.
- b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally in marine or saline waters nor 0.5 units in inland surface waters designated cold or warm fresh water habitat. In bays and estuaries, the pH shall not be depressed below 7.0 nor raised above 8.5. In inland surface below 6.5 nor raised above 8.5.
- c. The dissolved sulfide concentration of waters in and near sediments and throughout the water column shall not be significantly²⁵ increased above that present under natural conditions.
- d. The concentration of substances set forth in Chapter IV, Table B of the Ocean Plan, in marine sediments shall not be increased to levels which would degrade²⁴ indigenous biota.
- e. The concentration of organic materials in receiving water sediments shall not be increased to levels which would degrade²⁴ aquatic life.
- f. Nutrient materials shall not cause objectionable aquatic growth or degrade²⁴ indigenous biota.

5. Biological Characteristics

- a. Aquatic communities, including vertebrate,

invertebrate, and plant species, shall not be degraded²⁴.

- b. The natural taste, odor, and color of fish, shellfish²⁹, or other aquatic resources used for human consumption shall not be altered.
- c. The concentration of organic materials in fish, shellfish or other aquatic resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

6. Radioactivity

Discharge of radioactive waste shall not degrade²⁴ aquatic life.

7. Toxic Materials Limitations for Marine Waters(Surf Zone)

OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE

	<u>Units of Measurement</u>	<u>6-Month Median</u>	<u>Daily Maximum</u>	<u>Instantaneous Maximum</u>
Arsenic	µg/L	8	32	80
Cadmium	µg/L	1	4	10
Chromium (Hexavalent) ¹⁴	µg/L	2	8	20
Copper	µg/L	3	12	30
Lead	µg/L	2	8	20
Mercury	µg/L	0.04	0.16	0.4
Nickel	µg/L	5	20	50
Selenium	µg/L	15	60	150
Silver	µg/L	0.7	2.8	7
Zinc	µg/L	20	80	200
Cyanide	µg/L	1	4	10
Total Chlorine Residual ¹²	µg/L	2	8	60
Ammonia (as nitrogen)	µg/L	600	2400	6000
Chronic Toxicity	TUc		1	
Phenolic Compounds (non-chlorinated)	µg/L	30	120	300
Chlorinated Phenolics	µg/L	1	4	10
Endosulfan	ng/L	9	18	27
Endrin	ng/L	2	4	6
HCH ³⁰	ng/L	4	8	12

Radioactivity Not to exceed limits specified in Title 17, Chapter 15, Subchapter 4, Group 3, Article 3, Section 30269 of the California Code of Regulations.

OBJECTIVES FOR PROTECTION OF HUMAN HEALTH -- NONCARCINOGENS

<u>Chemical</u>	<u>Units of Measurement</u>	<u>30-day Averages</u>
acrolein	µg/L	220
antimony	mg/L	1.2
bis(2-chloroethoxy) methane	µg/L	4.4
bis(2-chloroisopropyl) ether	mg/L	1.2
chlorobenzene	µg/L	570
chromium (III)	mg/L	190
di-n-butyl phthalate	mg/L	3.5
dichlorobenzenes ³¹	mg/L	5.1
1,1-dichloroethylene	mg/L	7.1
diethyl phthalate	mg/L	33
dimethyl phthalate	mg/L	820
4,6-dinitro-2-methylphenol	µg/L	220
2,4-dinitrophenol	µg/L	4.0
ethylbenzene	mg/L	4.1
fluoranthene	µg/L	15
hexachlorocyclopentadiene	µg/L	58
isophorone	mg/L	150
nitrobenzene	µg/L	4.9
thallium	µg/L	14
toluene	mg/L	85
1,1,2,2-tetrachloroethane	mg/L	1.2
tributyltin	ng/L	1.4
1,1,1-trichloroethane	mg/L	540
1,1,2-trichloroethane	mg/L	43

OBJECTIVES FOR PROTECTION OF HUMAN HEALTH -- CARCINOGENS

<u>Chemical</u>	<u>Units of Measurement</u>	<u>30-day Average</u>
acrylonitrile	µg/L	0.10
aldrin	ng/L	0.022
benzene	µg/L	5.9
benzidine	ng/L	0.069
beryllium	ng/L	33
bis(2-chloroethyl) ether	µg/L	0.045
bis(2-ethylhexyl) phthalate	µg/L	3.5
carbon tetrachloride	µg/L	0.90
chlordane ³²	ng/L	0.023
chloroform	mg/L	0.13

DDT28	ng/L	0.17
1,4-dichlorobenzene	µg/L	18
3,3-dichlorobenzidine	ng/L	8.1
1,2-dichloroethane	mg/L	0.13
dichloromethane	mg/L	0.45

<u>Chemical</u>	<u>Units of Measurement</u>	<u>30-day Averages</u>
1,3-dichloropropene	µg/L	8.9
dieldrin	ng/L	0.040
2,4-dinitrotoluene	µg/L	2.6
1,2-diphenylhydrazine	µg/L	0.16
halomethanes ³³	mg/L	0.13
heptachlor ³⁴	ng/L	0.72
hexachlorobenzene	ng/L	0.21
hexachlorobutadiene	µg/L	14
hexachloroethane	µg/L	2.5
N-nitrosodimethylamine	µg/L	7.3
N-nitrosodiphenylamine	µg/L	2.5
PAHs ³⁵	ng/L	8.8
PCBs ³⁶	ng/L	0.019
TCDD equivalents	pg/L	0.0039
tetrachloroethylene	µg/L	99
toxaphene	ng/L	0.21
trichloroethylene	µg/L	27
2,4,6-trichlorophenol	µg/L	0.29
vinyl chloride	µg/L	36

8. Toxic Materials Limitations and Objectives for Inland Surface Waters(Fresh)

- (a) Discharges of extracted groundwater shall not cause violations of surface water quality objectives presented by hydrographic subunit and subarea in Table 3-2 of the Comprehensive Water Quality Control Plan Report, San Diego Basin (9), as amended.
- (b) Discharges of extracted groundwater shall not cause violations of the following objectives in inland surface waters:
 1. No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.
 2. For the protection of public health and aquatic

species, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of toxics in excess of the maximum contaminant levels for contaminants set forth in the California Code of Regulations, Title 22, as amended, or water quality objectives adopted by the SWRCB, or regional Board, for the protection of aquatic species and protection of human health, whichever concentration for a specific chemical is less. The SWRCB and the Regional Board have not yet adopted objectives for the protection of aquatic species for many toxics in inland streams. Current maximum contaminant levels for the protection of human health from the ingestion of water are as follows:

<u>Constituent</u>	<u>Maximum Contaminant Level (mg/L)</u>
a. Inorganic	
Aluminum	1
Arsenic	0.05
Barium	1
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Nitrate	45
Selenium	0.01
Silver	0.05
b. Organic	
Atrazine	0.003
Bentazon	0.018
Benzene	0.001
Carbon Tetrachloride	0.0005
2,4-D	0.1
Dibromochloropropane	0.0002
1,4-Dichlorobenzene	0.005
1,2-Dichloroethane	0.0005
1,1-Dichloroethylene	0.006
1,3-Dichloropropene	0.0005
Endrin	0.0002
Ethyl Benzene	0.68
Ethylene Dibromide	0.00002
Lindane	0.004
Methoxychlor	0.1
Molinate	0.02
Monochlorobenzene	0.03
Simazine	0.01
1,1,2,2-Tetrachloroethane	0.001
Tetrachloroethylene	0.005
Thiobencarb	0.07

Toxaphene	0.005
2,4,5-TP Silvex	0.01
1,1,1-Trichloroethane	0.2
1,1,2-Trichloroethane	0.032
Trichloroethylene	0.005
Vinyl Chloride	0.0005
Xylenes (Single or sum of isomers)	1.75

9. Mineral Objectives for Inland Surface Waters(fresh):

<u>Hydrographic Unit</u>	<u>Objective (mg/L)</u>			
	TDS	Chloride	Sulfate	Boron
San Juan Unit				
1.10	1000	400	500	0.75
1.20,1.30,1.40,1.50	500	250	250	0.75
Santa Margarita Unit				
2.20,2.40,2.50,2.60	500	250	250	0.75
2.70,2.80,2.90,2.10,2.30	750	300	300	0.75
San Luis Rey Unit				
3.10,3.20,3.30	500	250	250	0.75
Carlsbad Unit				
4.10,4.40				
4.20,4.30,4.50,4.60	500	250	250	0.75
San Dieguito Unit				
5.10,5.20,5.30,	500	250	250	0.75
Penasquitos Unit				
6.10,6.20,6.40	500	250	250	0.75
6.30,6.50	---	---	---	---
San Diego Unit				
7.10	1000	400	500	1.0
7.12c/d,	1000/1500	400	500	1.0
7.20,7.30,7.40	300	50	65	1.0
Coronado Unit				
10.10	na	na	na	na
Sweetwater River Unit				
9.10	1500	500	500	0.75
9.20,9.30	500	250	250	0.75
Otay Unit				
10.20	1000	400	500	0.75
10.30	500	250	250	0.75

Tijuana Unit				
11.11	2100	na	na	na
11.20,11.30,11.40,11.50				
11.60,11.70,11.80	500	250	250	1.0

10. Waters designated for use as agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use.

11. RADIOACTIVITY

Discharges of radioactive waste shall not degrade marine life.

D. PROVISIONS

1. Neither the treatment nor the discharge of wastes shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.
2. The discharger must comply with all conditions of this Order and the authorization letter from the Executive Officer. Any permit noncompliance constitutes a violation of the Clean Water Act and the California Water Code and is grounds for enforcement action or for authorization letter termination or modification.
3. The discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order or the authorization letter from the Executive Officer, including such accelerated or additional monitoring as may be necessary to determine the nature, and impact of the noncomplying discharge.
4. This Order or an authorization letter from the Executive Officer, may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:
 - a. Violation of any terms or conditions of this Order or an authorization letter from the Executive Officer;
 - b. Obtaining this Order, or an authorization letter from the Executive Officer, by misrepresentation or failure to disclose fully all relevant facts;
 - c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
 - d. A finding that monitoring "indicator" pollutants listed in this Order do not ensure compliance with water quality criteria or objectives for the pollutants expected to be represented by the "indicator" pollutants.

The filing of a request by the discharger for modification, revocation and reissuance, or termination of this Order or an associated discharge authorization letter from the Executive Officer, or a notification of planned change in or anticipated noncompliance with this Order or discharge authorization letter does not stay any condition of this Order or the authorization letter from the Executive Officer.

5. If any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the Clean Water Act for a toxic pollutant and that standard or prohibition is more stringent than any limitation on the pollutant in this Order, the Executive Officer may institute proceedings under these regulations to modify or revoke and reissue this Order to conform to the toxic effluent standard or prohibition.
6. In addition to any other grounds specified herein, this Order or an authorization letter from the Executive Officer shall be modified or revoked at any time if, on the basis of any data, the Executive Officer determines that continued discharges may cause unreasonable degradation of the aquatic environment.

The Executive Officer of the Regional Board or the Director of the USEPA may require any person requesting authorization to discharge under this general permit or authorized to discharge under this general permit to apply for and obtain an individual NPDES permit. Cases where an individual NPDES permit may be required include but are not limited to those described in 40 CFR 122.28 (b)(3)(i) and (b)(3)(ii).

7. An authorized discharge, either separately or jointly with any other discharge, shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the SWRCB as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act or amendments thereto, the Regional Board will revise and modify this Order in accordance with the more stringent standards.
8. The discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement.
9. This Order or an authorization letter from the Executive Officer, is not transferable to any person except after notice to the Executive Officer of this Regional Board. The Regional Board shall require the

transmittal of a new discharge authorization letter from the Executive Officer to change the name of the discharger and incorporate such other requirements as may be necessary under the California Water Code and the Clean Water Act. The discharger shall submit notice of any transfer of this Order's responsibility and coverage to a new discharger as described under Reporting Requirement E.3.

10. This Order or an authorization letter from the Executive Officer, does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property of another, including property damage caused as a result of the migration of groundwater contaminant plumes, nor protect the discharger from liabilities under federal, state, or local laws, nor create a vested right for the discharger to continue its waste discharge.
11. The discharger shall allow the Regional Board, or an authorized representative or any representative of the USEPA upon the presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operation regulated or required under this Order; and
 - d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the Clean Water Act or California Water Code, any substances or parameters at any location.
12. The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this Order or an authorization letter from the Executive Officer. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order or an authorization letter from the Executive Officer.
13. Bypass of Treatment Facilities
 - a. Definitions

- (1) "Bypass" means the intentional diversion of waste streams from any portion of the treatment facility.
- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass Not Exceeding Effluent Limitations

The discharger may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operations. These bypasses are not subject to the provisions of paragraphs (c) and (d) of this section.

c. Notice of Anticipated Bypass and Unanticipated Bypass

- (1) Anticipated bypass. If the discharger knows in advance of the need for a bypass, they shall submit prior notice, if possible, at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The discharger shall submit notice of an unanticipated bypass as described under Reporting Requirement E.5.

d. Prohibition of Bypass

- (1) Bypass is prohibited and the Regional Board may take enforcement action against the discharger for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the discharger could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment down time or preventative maintenance; and
 - (c) The discharger submitted notices as required under paragraph (c) of this Section.

- (2) The Executive Officer may approve an anticipated bypass, after considering its adverse effect, if the Executive Officer determines that it will meet the three conditions listed above in paragraph (a) of this section.

14. Upset Condition

a. Definitions

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an Upset

An upset constituent an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph (c) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions Necessary for a Demonstration of Upset

A discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) An upset occurred and that the discharger can identify the specified cause(s) of the upset;
- (2) The permitted facility was at the time being properly operated; and
- (3) The discharger submitted notice of the upset as required in Reporting Requirements E.5.

d. Burden of Proof

In any enforcement proceeding the discharger seeking to establish the occurrence of an upset has the burden of proof.

15. It shall not be a defense for the discharger in an enforcement action

that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order or an authorization letter from the Executive Officer. Upon reduction, loss, or failure of the treatment facility, the discharger shall, to the extent necessary to maintain compliance with this Order or an authorization letter from the Executive Officer, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of the treatment facility fails, is reduced or is lost.

16. It shall not be a defense for the discharger in an enforcement action that effluent limitation violations are a result of analytical variability rendering the results inaccurate. The validity of the testing results, whether or not the discharger has monitored or sampled more frequently than required by this Order, shall not be a defense to an enforcement action.
17. A copy of this Order, and the authorization letter from the Executive Officer shall be posted at a prominent location at the discharger's facility, and shall be available to operating personnel at all times.
18. The provisions of this Order and the authorization letter from the Executive Officer are severable, and if any provision of this Order or an authorization letter from the Executive Officer, or the application of any provision of this Order or an authorization letter to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this Order and the authorization letter, shall not be affected thereby.
20. The discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order which has a reasonable likelihood of adversely affecting human health or the environment.
21. The discharger shall comply with any interim effluent limitations as established by addendum, enforcement action or revised waste discharge requirements which have been or may be adopted by this Regional Board.
22. The 6-month median effluent concentration limit shall apply as a moving median of daily values for any 180-day period in which daily values represent flow-weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.
23. The 30-day average shall be the arithmetic mean, using the results of analyses of all samples collected during any 30 consecutive calendar day period.
24. The 7-day average shall be the moving arithmetic mean of daily concentrations over the specified 7-day period.

25. The daily maximum effluent concentration limitation shall apply to flow weighted 24 hour composite samples, or grab samples in the duration of the discharge is less than 24 hours.
26. The instantaneous maximum effluent concentration limit shall apply to grab sample determinations.
27. If only one sample is collected during the time period associated with the effluent limitations (e.g., 30-day average or 6-month median), the single measurement shall be used to determine compliance with the effluent limitation for the entire time period.
28. All analytical data shall be reported uncensored with detection limits and quantitation limits identified. For any effluent limitation, compliance shall be determined using appropriate statistical methods to evaluate multiple samples. Sufficient sampling and analysis shall be conducted to determine compliance.
29. Compliance based on a single sample analysis should be determined where appropriate as described below.
 - a. When a calculated effluent limitation is greater than or equal to the PQL (defined below), compliance shall be determined based on the calculated effluent limitation and either single or multiple sample analyses.
 - b. When the calculated effluent limitation is below the PQL, compliance determinations based on analysis of a single sample shall only be undertaken if the concentration of the constituent of concern in the sample is greater than or equal to the PQL.
 - c. When the calculated effluent limitation is below the PQL and recurrent analytical responses between the PQL and the calculated limit occur, compliance shall be determined by statistical analysis of multiple samples.
30. Published values for MDLs (defined below) and PQLs should be used except where revised MDLs and PQLs are available from recent laboratory performance evaluations, in which case the revised MDLs and PQLs should be used. Where published values are not available, the Executive Officer will determine appropriate values based on available information, including information submitted by the discharger upon request of the Executive Officer.
 - a. The Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136 Appendix B.
 - b. The Practical Quantitation Level (PQL) is the lowest concentration of a substance which can be consistently determined within +/-20% of the true concentration by 75% of the labs tested

in a performance evaluation study. Alternatively, if performance data are not available, the PQL for carcinogens is the MDL x 5, and for noncarcinogens is the MDL x 10.

31. When determining compliance based on a single sample, with a single effluent limitation which applies to a group of chemicals (e.g. PCBs) concentrations of individual members of the group may be considered to be zero if the analytical response for individual chemicals falls below the MDL for that parameter.
32. The mass emission rate (MER), in pounds per day, shall be obtained from the following calculation for any calendar day:

$$\text{mass emission rate (lb/day)} = 8.34 \times Q \times C$$

in which Q and C are the flow rate in MGD and the constituent concentration in mg/L, respectively, and 8.34 is a conversion factor.

If a composite sample is taken, then C is the constituent concentration measured in the composite sample and Q is the average flow rate occurring during the period over which the samples are composited. Mass loading effluent limitations for a specific pollutant may be calculated using the authorized flowrate (in MGD) as the flow rate "Q" and the pollutant concentration limitation contained in Discharge Specification No. B.1 as the constituent concentration "C" in the above equation.

33. Compliance with the Acute Toxicity limitation in Discharge Specification B.1.a. of this Order shall be determined using an established protocol, e.g., American Society for Testing Materials (ASTM), USEPA, American Public Health Association, or State Board. Acute Toxicity (TUa) shall be expressed in Toxic Units Acute (TUa), where:

$$\text{TUa} = 100/96\text{-hour LC } 50$$

Where LC50 is the Lethal Concentration 50% and the percent waste giving 50% survival of test organisms. LC50 shall be determined by static or continuous flow bioassay techniques using standard test species. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50% survival of the test species in 100% waste, the toxicity concentration shall be calculated by the following:

$$\text{TUa} = [\log(100-S)]/1.7$$

where S is the percentage survival in 100% waste. If $S > 99$, TUA shall be reported as zero.

34. Compliance with the Chronic Toxicity effluent limitation established in Discharge Specification No. B.1.b of this Order shall be determined using critical life stage toxicity tests. Chronic Toxicity (TUC) shall be expressed as Toxic Units Chronic (TUC), where:

$$TUC = 100/NOEL$$

where NOEL is the No Observed Effect Level and is expressed as the maximum percent of effluent that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed below.

A minimum of three test species with approved test protocols shall be used to measure compliance with the chronic toxicity objective. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period, to be determined on a case by case basis by the Executive Officer, monitoring may be reduced to the most sensitive species. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results.

The tests specified in the March 1990 Ocean Plan shall be used to measure TUC. Other tests may be added to the list when approved by the SWRCB.

35. No later than six months after authorization to discharge under this Order, all permanent groundwater extraction waste dischargers shall develop a Toxicity Reduction Evaluation (TRE) workplan in accordance with USEPA's Toxicity Reduction Evaluation Procedures: Phases 1, 2, and 3, (USEPA document Nos. USEPA 600/3-88/034, 600/3-88/035 and 600/3-88/036, respectively), and TRE Protocol for Municipal Wastewater Treatment Plants (USEPA 600/2-88/062). The TRE workplan shall be subject to the approval of the Executive Officer and shall be modified as directed by the Executive Officer. All dischargers shall submit the TRE workplan to the Executive Officer upon completion of the TRE workplan. Submittal of the TRE workplan on a IBM formatted double sided high density 3.5" floppy disk in WordPerfect 5.2 format is acceptable.

If toxicity testing results show a violation of any acute or chronic toxicity limitation identified in Discharge Specification B.1 of this Order, the discharger shall:

- a. Take all reasonable measures necessary to immediately minimize toxicity; and

- b. Increase the frequency of the toxicity test(s) which showed a violation to at least two times per month until the results of at least two consecutive toxicity tests do not show violations.

If the Executive Officer determines that toxicity testing shows consistent violation of any acute or chronic toxicity limitation identified in Discharge Specification B.1. of this Order, the discharger shall conduct a TRE which includes all reasonable steps to identify the source of toxicity. Once the source of toxicity is identified, the discharger shall take all reasonable steps to reduce the toxicity to meet the toxicity limitations identified in Discharge Specification B.1 of this Order.

Within fourteen days of completion of the TRE, the discharger shall submit the results of the TRE, including a summary of the findings, data generated, a list of corrective actions necessary to achieve consistent compliance with all the toxicity limitations of this Order and prevent recurrence of violations of those limitations, and a time schedule for implementation of such corrective actions. The corrective actions and time schedule shall be modified at the direction of the Executive Officer.

36. For all bacterial analyses, sample dilutions should be performed so the range of values extends from 2 to 16,000 MPN (most probable number). The detection methods used for each analysis shall be reported with the results of the analysis. Detection methods used for coliforms (total and fecal) shall be those presented in the most recent edition of Standard Methods for the Examination of Water and Wastewater or any improved method determined by the Regional Board (and approved by USEPA) to be appropriate. Detection methods used for enterococcus shall be those presented in USEPA publication USEPA 600/4-85/076, Test Methods for Escherichia coli and Enterococci in Water By Membrane Filter Procedure or any improved method determined by the Regional Board to be appropriate.
37. The geometric mean used for determining compliance with bacterial standards is calculated with the following equation:

$$\text{Geometric Mean} = (C_1 \times C_2 \times \dots \times C_n)^{1/n}$$

where n is the number of days samples were collected during the period and C is the concentration of bacteria (MPN/100 mL) found on each day of sampling.

38. As used in this Order, waste includes a discharger's total discharge, of whatever origin, i.e. gross, not net, discharge.
39. Reduction of natural light may be determined by the Regional Board by measurement of light transmissivity or total irradiance, or both,

according to the monitoring needs of the Regional Board.

E. REPORTING REQUIREMENTS

1. The discharger shall file a new application and certification report not less than 180 days prior to the following:
 - a. Addition of any industrial waste to the discharge or the addition of a new process or product resulting in a change in the character of the wastes.
 - b. Significant change in disposal method (e.g., change in the method of treatment which would significantly alter the nature of the waste).
 - c. Significant change in disposal area (e.g., moving the discharge to a disposal area significantly removed from the original area, potentially causing different water quality or nuisance problems).
 - d. Increase in flow beyond that specified in the discharger's authorization letter from the Executive Officer.
 - e. Other circumstances which result in a material change in character, amount, or location of the waste discharge.
 - f. Any planned physical alterations or additions to the permitted facility.
2. The discharger shall give advance notice to the Executive Officer of any planned changes in the permitted facility or activity which may result in noncompliance with the requirements of this Order or an authorization letter from the Executive Officer.
3. The discharger must notify the Executive Officer, in writing, at least 30 days in advance of any proposed transfer of authorization and responsibility for compliance with this order to a new discharger. The notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of authorization responsibility and coverage between the current discharger and the new discharger. This agreement shall include an acknowledgement that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on.
4. The discharger shall comply with the attached Monitoring and reporting Program No. 96-41 and any additional monitoring requirements specified by the Executive Officer. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. 96-41. The sampling and analysis schedule in the attached monitoring program is the program to be followed. If requested by the discharger, the monitoring program may be modified or reduced by the Executive Officer after review of results from not less than four sampling events with a sampling frequency of not less than monthly. If the groundwater

extraction and/or treatment system(s) described in the application and certification report is modified, the schedule of applicable monitoring specified in Monitoring and Reporting Program No. 96-41 will be reviewed for possible modification.

5. The discharger shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally to the Executive Officer within 24 hours from the time the discharger becomes aware of the circumstances. The discharger shall submit a written report containing a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The written report shall be included with the monitoring report for the period in which the noncompliance occurred, or earlier if requested by the Executive Officer. The following occurrence(s) must be reported to the Executive Officer within 24 hours:
 - a. Any upset which causes the effluent limitations of this Order to be exceeded.
 - b. Any unanticipated bypass which causes the effluent limits of this Order to be exceeded.
 - c. Violation of a daily maximum effluent limitation, or instantaneous maximum effluent limitation if a grab sample is obtained, as specified in this Order excluding violations of settleable solids, total suspended solids, turbidity, phosphorus, and nitrogen (provided that nitrate-nitrogen does not exceed 10 mg/L).
 - d. Any violation of the prohibitions of this Order or an authorization letter from the Executive Officer.
6. The discharger shall notify the Executive Officer as soon as it is known or there is reason to believe:
 - a. That any activity has occurred or which will occur which will result in the discharge of any toxic pollutant which is not limited in this Order, if that discharge will exceed the highest of the following "notification levels":
 1. One hundred micrograms per liter (100 $\mu\text{g/L}$);
 2. Two hundred micrograms per liter (200 $\mu\text{g/L}$) for acrolein and acrylonitrile; five hundred micrograms per liter (500 $\mu\text{g/L}$) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony.
7. The discharger shall furnish to the Executive Officer, within a reasonable time, any information which the Executive Officer may request to determine whether cause exists for modifying, revoking and

reissuing, or terminating this Order or an authorization letter, or to determine compliance with this Order or other requirements established by the Executive Officer. The discharger shall also furnish to the Executive Officer, upon request, copies of records required to be kept by this Order or an authorization letter from the Executive Officer.

8. The discharger shall provide adequate notice to the Executive Officer of the following:
 - a. Any new introduction of pollutants to the discharge.
 - b. Any substantial change in the volume or character of pollutants being introduced into the discharge.
 - c. For the purpose of this provision, adequate notice shall include information on (a) the quality and quantity of waste introduced into the discharge, and (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged to the receiving water.
9. Where the discharger becomes aware that it failed to submit any relevant facts in an application or certification report, or submitted incorrect information in an application or certification report, or in any report to the Regional Board, it shall promptly submit such facts or information.
10. If a need for a discharge bypass is known in advance, the discharger shall submit prior notice and, if at all possible, such notice shall be submitted at least ten days prior to the date of the bypass.
11. This Order expires on June 13, 2001. However, it will continue in force and effect until a new general permit is issued or the Regional Board rescinds this general permit.
12. All applications, reports, or information submitted to the Executive Officer of this Regional board shall be signed and certified.
 - a. The application and certification report shall be signed as follows:
 1. For a corporation - by a principal executive officer of at least the level of vice-president.
 2. For a partnership or sole proprietorship - by a general partner or the proprietor, respectively.
 3. For a municipality, state, federal or other public agency - by either a principal executive officer or ranking elected official.
 - b. All other reports required by this Order and other information requested by the Executive Officer shall be signed by a person designated in paragraph (a) of this provision, or by a duly authorized representative of that person. An individual is a duly

authorized representative only if:

1. The authorization is made in writing by a person described in paragraph (a) of this provision;
 2. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or well field, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 3. The written authorization is submitted to the Executive Officer.
- c. Any person signing a document under this Section shall make the following certification:
- "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."
13. Except for data determined to be confidential under Title 40, Code of Federal Regulations Part 2 (40 CFR Part 2), all reports prepared in accordance with the terms of this Order shall be available for public inspection at the offices of the California Regional Water Quality Control Board, San Diego Region and the USEPA, Region 9. As required by the Clean Water Act, applications and certification reports, this Order, and effluent data shall not be considered confidential.
14. In order to obtain authorization to discharge under the terms and conditions of this Order, the discharger shall submit an application on forms provided by the Executive Officer, and in accordance with directions specified by the Executive Officer. **The application shall include the following information and materials:**
- a. Project type: remediation or construction.
 - b. Project address/location.
 - c. Number of groundwater extraction sites.
 - d. Estimated maximum discharge flowrate(s) (GPD).
 - e. Estimated duration of groundwater extraction operation.

- f. Proposed groundwater extraction start date.
 - g. Proposed discharge location and receiving water.
 - h. Cone of influence assessment.
 - i. Historical land use report.
 - j. Proximity of discharge location to Areas of Special Biological Significance (ASBS).
 - k. Site Assessment (if a site assessment has been done).
 - l. Description of all known contamination within the cone of influence.
 - m. Proposed treatment processes, including chemicals to be used for biofouling control.
 - n. BMP and contingency plan (for leaks, spills and treatment system failures).
 - o. Discussion of the potential uses of the extracted groundwater and compliance with Article X, Section 2, of the California Constitution. An example of a potential use is dust control.
 - p. Discussion of the potential for disposal to alternative receiving waters. Examples of alternative methods of disposal are reinjection and percolation into the ground.
 - q. Discussion of compliance with 40CFR 131.12 and SWRCB Resolution No. 68-16 (collectively Antidegradation Policies).
 - r. Results of analyses of the groundwater to be extracted for all of the constituents listed in Discharge Specification B.1, B.2, B.3, or B.4 (depending upon the receiving water) of this Order.
 - s. Signed Certification of Compliance statement on responsible party letterhead.
15. The discharger shall submit written notification of the termination of the discharge to the Executive Officer within 30 days of the termination of the discharge.
16. The discharger shall submit applications and reports required under this Order to:

Surface Water Unit
California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Blvd, Suite A
San Diego, California 92124-1331

F. NOTIFICATIONS

1. California Water Code Section 13263(g) states:

"No discharge of waste into the waters of the state, whether or not such discharge is made pursuant to waste discharge requirements,, shall create a vested right to continue such discharge. All discharges of waste into waters of the state are privileges, not rights."

2. The Clean Water Act provides that any person who violates a condition of this Order implementing Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act is subject to a civil penalty not to exceed \$10,000 per day of such violations. Any person who willfully or negligently violates conditions of this Order implementing Section 301, 302, 306, 307 or 308 of the Clean Water Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both.
3. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
4. Nothing in this Order shall be construed to relieve the discharger from civil or criminal penalties for noncompliance.
5. Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the discharger is or may be subject to under Section 311 of the Clean Water Act.
6. Nothing in this Order shall be construed to preclude institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act.
7. This Order shall become effective 10 days after the date of its adoption, provided the Regional Administrator or Director, USEPA, has no objection. If the Regional Administrator or Director objects to its issuance, this Order shall not become effective until such objection is withdrawn.
8. If the Water Quality Control Policy for Enclosed Bays and Estuaries of California is revised, this Order may be modified to incorporate such revisions. If a Water Quality Control Plan for Enclosed Bays and Estuaries of California is adopted, this Order may be modified to

implement such a plan.

9. This Order supersedes Order No. 91-10, and Order No. 91-10 is rescinded when this Order takes effect.

FOOTNOTE REFERENCES

1. "Enclosed bays" include all bays where the narrowest distance between headlands or outer most harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay.
2. "Best available technology economically achievable" refers to the best treatment technologies available which have been determined to be cost effective, reliable, and efficient by the USEPA, SWRCB, or the Regional Water Quality Control Board.
3. 40 CFR 122.4(d)(1)(vii) requires that if indicator monitoring parameters are used, the following four provisions must be fulfilled: 1) the permit identifies which pollutants are intended to be controlled by use of the indicator effluent limitations, 2) the fact sheet sets forth the basis for each indicator chemical's effluent concentration limitation and includes a finding that compliance with the limit on the indicator constituent will result in controls on the pollutant(s) of concern which are sufficient to attain and maintain water quality standards, 3) effluent and receiving water quality monitoring to show the limit on the indicator parameter attains and maintains applicable water quality standards, and 4) the permit contains a reopener clause. Each of the preceding conditions for inclusion of indicator parameter monitoring has been addressed in this Order, the attached Monitoring and Reporting Program, the discharge authorization letter from the Executive Officer, or the Fact Sheet for this Order.
4. Leaking Underground Storage Tank Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure, State of California, Leaking Underground Fuel Tank Task Force, May 1988.
5. Diesel fuel consists primarily of straight-chain hydrocarbons (alkenes and alkanes) ranging in length from C10 to C23 with C16 and C17 predominating. The C10-C30 straight-chain hydrocarbons can be quantified in groundwater using standard analytical techniques (e.g. California Department of Health Services recommended analytical procedure for total petroleum hydrocarbons - diesel, (LUFT Manual: Guidelines for site Assessment, Cleanup, and Underground Storage Tank Closure, October 1989 base/neutral organic analytical techniques contained in 40CFR 136). Since the predominant components of diesel fuel are the straight-chain hydrocarbons, the total petroleum hydrocarbon - diesel standard testing method contained in the LUFT Manual is used as the indicator of diesel fuel-contaminated groundwaters. Groundwater gasoline remediation projects may use standard TPH methods.

The "indicator" compounds to detect common industrial solvents are the volatile organic compounds listed in 40 CFR 136.

6. NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document (Draft), USEPA, Water Management Division, July 1986.
7. After receipt of an application and certification report as required by Reporting Requirement E.14 of Order No. 96-41, the Executive Officer may 1) determine that the proposed discharge is subject to regulation by Order No. 96-41, 2) determine that the proposed discharge is not subject to regulation by Order No. 96-41, or 3) request additional information in order to determine if the discharge is subject to regulation by Order No. 96-41. If the Executive Officer determines that the proposed discharge is subject to regulation by Order No. 96-41, an "authorization letter" will be issued to the discharger authorizing the discharge subject to the

terms and conditions of Order No. 96-41 and any other conditions necessary to protect the beneficial uses of San Diego Bay. The authorization letter from the Executive Officer will also specify the maximum allowed discharge flowrate (which also limits the mass loading rate for each pollutant listed in Discharge Specification No. B.1. of Order No. 96-41) and any additional monitoring and reporting requirements not covered by Monitoring and Reporting Program No. 96-41. Discharge authorization letters issued by the Executive Officer for discharges from groundwater remediation operations, shall specify effluent limits and monitoring requirements for the constituents necessitating remediation. If the Executive Officer does not issue written authorization for a discharge under the terms and conditions of Order No. 96-41, the discharge of groundwater extraction waste to San Diego Bay is prohibited.

8. The effluent limitations for Ocean Plan Table B constituents for groundwater extraction waste discharges to bays and estuaries were determined by using an initial dilution factor of zero and applying the calculations and procedures found in the Water Quality Control Plan, Ocean Waters of California, 1990 (Ocean Plan) except for volatile and base/neutral extractable compounds, in which case concentrations achievable using best available technology economically achievable (BAT) were taken into considerations lower than Table B-based effluent limitations can be achieved using BAT, BAT is the basis for the lower effluent limit.

The effluent limitations for Ocean Plan Table B constituents for groundwater extraction waste discharges to the surf zone were determined by using an initial dilution factor of three and applying the volatile and base/neutral compounds in the case that BAT is able to reduce the constituent to a lower concentration. The use of dilution factor of three for discharges to surf zones is based on a preliminary dilution model submitted by Professor Gerhard H. Jirka, School of Civil and Environmental Engineering, Cornell University for a dewatering project for the international treatment facility ocean outfall near Tijuana. This particular model assumes that 1) mixing of the dewatering is primarily controlled by wave-induced turbulence and longshore conditions, 2) 0.55 meter wave height with a 15 second period occurring with a 95 percent exceedance probability, 3) a longshore velocity of 5 to 10 centimeters per second, and 4) a near-shore slope of 3 percent. The model results in an initial dilution ratio of 6. Since the model does not represent topographic and wave conditions throughout the region, the initial dilution factor for discharges to surf zones was halved.

The effluent limitations for volatile and base/neutral organics not limited by standard criteria or objectives (e.g., Ocean Plan, USEPA criteria, etc.) are based on best professional judgement of the best available technology economically achievable (BAT) for the removal of volatile and semivolatile organic compounds from groundwater (reference is made to NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document (Draft), USEPA, Water Management Division, July 1986) and the practical quantitation level for each compound. Effluent limitations for settleable solids, total suspended solids, nitrogen, phosphorus, turbidity, dissolved oxygen, and acute toxicity are based on best professional judgement.

Effluent limitations for toxic pollutants which may be present in groundwater extraction waste discharges to inland surface waters designated municipal or potable supply are based on 1) the USEPA criteria for the protection of aquatic species, 2) the California Department of Health Service's Maximum Contaminant Level (MCL) for potable water, or 4) achievable effluent concentrations using best available technology (BAT). Effluent limitations for discharges to inland surface waters which have not been designated as having a beneficial use of municipal or potable supply are based the 1) the USEPA criteria for the protection of aquatic species, 2) the USEPA criteria for the protection of human health from consumption of aquatic species, or 3) achievable effluent concentrations using best available technology (BAT).

Effluent limitations for the protection of human health from the ingestion of carcinogens are based on the EPA criteria which may result in an incremental cancer risk over the lifetime of 10^{-6} .

Where effluent concentration limitations in this Order are less than Methods Detection Limits (MDL) contained in 40 CFR 136, or other analytical detection levels approved by the Executive Officer, compliance with effluent limitations will be assumed if the effluent concentration is less than the MDL or practical quantitation levels contained in the approved analytical methods unless more definitive (sensitive) analytical methods are requested by the Executive Officer. If sample matrix interferences, or other interferences result in analytical detection levels less sensitive than those listed in 40 CFR 136, or other methods approved by the Executive Officer, such interferences shall be documented by the laboratory performing the analyses.

9. The "Basis" for each numerical effluent pollutant concentration limit necessary to protect the beneficial uses of receiving waters was derived or obtained from the source indicated in Discharge Specifications B.1 through B.4. Abbreviations listed in the table are explained in footnote reference nos. 10, 11, 13 and 21 below.
10. "BPJ" = Best Professional Judgement. The application of best professional judgement in establishing effluent limitations is authorized by 40 CFR 125.3. The establishment of BPJ effluent limitations is based on 1) review of effluent limitations for similar operations which discharge wastes to enclosed bays or other receiving waters in the State of California, 2) Compliance with general narrative water quality objectives as required in the Comprehensive Water Quality Control Plan Report, San Diego Basin (9) (Basin Plan), 3) Review of technical support documents Quality Criteria for Water, United States Environmental Protection Agency, if available, for suggested criteria for the protection of aquatic life, 4) Water Quality Control Plan, Ocean Waters of California, 1990, and 5) Water Quality Control Policy for Enclosed Bays and Estuaries of California.
11. Effluent limitations for Ocean Plan Table B constituents are derived using a dilution factor of Zero for discharges to bays and estuaries, lagoons and harbors, inland surface waters and three for discharges to the surf zone, and applying the calculations and procedures found in the Ocean Plan (Water Quality Control Plan, Ocean Waters of California, 1990). The effluent limitations for volatile organics (e.g., benzene, ethylbenzene, toluene, and xylene, etc.) are based on best professional judgement of the best available technology economically achievable (BAT) for the removal of volatile organic compounds from water (reference is made to NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document (Draft), U.S. Environmental Protection Agency, Water Management Division, July 1986) and the practical quantitation level for each compound. Effluent limitations for settleable solids, total suspended solids, toxicity, hydrogen sulfide, and total petroleum hydrocarbons are based on best professional judgement.
12. Total Residual Chlorine: In samples obtained from marine, saline, or other waters containing bromine, total residual chlorine limitations shall apply to total residual oxidants (TRO). The effluent and receiving water quality limitations for chlorine are based on a continuous discharge. Effluent and receiving water quality limitations for total chlorine residual applying to intermittent chlorine discharges not exceeding two hours, shall be determined through the use of the following equation:
$$\log y = -0.33(\log x) + 2.1$$
where y = the effluent and receiving water quality limitation
(in $\mu\text{g/L}$) to apply when chlorine is being discharged;
 x = the duration of uninterrupted chlorine discharge in minutes.

13. "BPJ/BAT" = The best professional judgement of the best available technology economically achievable. The effluent limitations for volatile and semivolatile organic compounds are based on BPJ/BAT for the removal of organic constituents as authorized by Section 301(b)(2) of the Clean Water Act. The establishment of the BPJ/BAT effluent imitations is based on 1) economically achievable pollutant removal efficiencies of available treatment technologies, 2) method detection limits (MDL) or practical quantitation levels (PQL) established for organic contaminants in waters, 3) the draft document NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document for volatile petroleum hydrocarbons, prepared by Harold A. Ball and Kenneth H. Sutherland, USEPA, Water Management Division, July 1986, 4) Leaking Underground Storage Tank Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure, State of California, Leaking Underground Fuel Tank Task Force, May 1988, 5) Final NPDES General Permit for Petroleum Fuel Contaminated Ground/Storm Water in the State of Florida, Federal Register, July 17, 1989, and, 6) Model NPDES Permit for Discharges Resulting From the Cleanup of Gasoline Released From Underground Storage Tanks, USEPA, June 1989.
14. The hexavalent and trivalent chromium limits may be met as a total chromium limit. If analytical results for total chromium reveal a total chromium concentration greater than the effluent limitations for hexavalent chromium and the sample has not been analyzed for hexavalent chromium, it will be assumed that hexavalent chromium concentrations are in violation of the effluent limitation.
15. PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Arochlor-1016, Arochlor-1221, Arochlor-1232, Arochlor-1242, Arochlor-1248, Arochlor-1254, and Arochlor-1260.
16. "Base/Neutral organic compounds" are listed in 40 CFR 136. The instantaneous maximum effluent limitation of 10 µg/L for base/neutral compounds does not apply to pesticides.
17. Discharger to lagoons and estuaries consisting of freshwater shall comply with the effluent limitations for discharges to inland surface waters. Where questions arise concerning the salinity, or lack thereof, of a receiving water, the Executive Officer shall determine which effluent limitation are applicable.
18. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. Threshold total phosphorus concentrations shall not exceed 0.05 mg/L in any stream at the point where it enters any standing body of water, nor 0.025 mg/L in any standing body of water. A desired goal in order to prevent plant nuisances in streams and other flowing waters appears to be 0.1 mg/L total phosphorus. These values are not to be exceed more than 10% of the time unless studies of the specific water body in question clearly show that water quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and upheld. If data are lacking , a ration of nitrogen:phosphorus = 10:1 shall be used.
19. BP = Basin Plan (Comprehensive Water Quality Control Plan Report, San Diego Basin (9)).
20. Effluent limitations for discharges to the surf zone were obtained assuming an initial dilution factor of three and applying the calculations and procedures found in the Water Quality Control Plan, Ocean Waters of California, 1990, except in cases in which BAT can achieve lower effluent pollutant concentrations. BAT effluent limitations are applied at the "end-of-pipe" and dilution factors are not applicable.
21. Surface waters with municipal beneficial uses are identified in the Basin Plan.

22. DOHS = California Department of Health Services - Maximum Contaminant Levels for drinking water.
23. The 4-day average shall be the arithmetic mean of all samples obtained over a consecutive 4-day period.
24. Degradation shall be determined by comparison of the waste field and reference site(s) for characteristics such as species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.
25. Significant difference is defined as statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.
26. Compliance with the water quality objectives shall be determined from samples collected at stations representative of the area within the waste field where initial dilution is completed. Since the effluent limitations in this Order are based on an initial dilution factor of zero with the exception of discharges to the surf zone, compliance with the water quality objectives shall be met at all locations in the receiving water.
27. Kelp Beds are significant aggregations of marine algae of the genera *Macrocystis* and *Nereocystis*. Kelp beds include the total foliage canopy of *Macrocystis* and *Nereocystis* plants throughout the water column.
28. Initial dilution is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of the discharges.

29. Shellfish are organisms identified by the California Department of Health Services as shellfish for public health purposes (i.e. mussels, clams, and oysters).
30. HCH shall mean the sum of heptachlor and heptachlor epoxide.
31. Dichlorobenzenes shall mean the sum of 1,2- and 1,3-dichlorobenzene.
32. Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordane-alpha, chlordane-gamma, nonachlor-alpha, nonachlor, nonachlor-gamma, and oxychlordane.
33. DDT shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.
34. Halomethanes shall mean the sum of bromoform, bromomethane, (methyl bromide), chloromethane (methyl chloride), chlorodibromomethane, and dichlorobromomethane.
35. Heptachlor shall mean the sum of heptachlor and heptachlor epoxide.

36. PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,1,2-indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Control Board, San Diego Region, on June 13, 1996.

JOHN H. ROBERTUS
EXECUTIVE OFFICER

California Regional Water Quality Control Board
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FACT SHEET
FOR
ORDER NO. CA0108804
GENERAL
WASTE DISCHARGE REQUIREMENTS
FOR
GROUNDWATER REMEDIATION AND Extraction WASTE DISCHARGES
TO
SURFACE WATERS WITHIN THE SAN DIEGO REGION
EXCEPT FOR SAN DIEGO BAY

I. General Description

Developers and representatives from construction industries in the San Diego area have expressed their intent to apply for National Pollutant Discharge Elimination System (NPDES) permits to discharge construction dewatering waste (groundwater) to various receiving waters within the region. The San Diego Regional Water Quality Control Board (hereinafter Regional Board) has become aware that petroleum pollutant plumes exist in groundwaters in areas subject to construction dewatering. In addition to construction dewatering discharges, groundwater remediation projects required by cleanup and abatement orders issued by the Regional Board may require the discharge of treated groundwater. Regional Board staff expects that a number of the project proponents will propose discharges to surface waters which will require NPDES permits. In addition to petroleum products and solvents, groundwaters may contain elevated concentrations of other pollutants which could degrade surface waters. These other pollutants may include metals, nutrients (nitrogen and phosphorus), hydrogen sulfide, solids, and other inorganic and organic compounds.

Existing and proposed discharges of groundwater extraction waste from construction dewatering, foundation dewatering, and groundwater cleanup projects: 1) result from similar operations (all involve extraction and discharge of groundwater), 2) are the same type of waste (all are groundwater), 3) require similar effluent limitations for the protection of the beneficial uses of the receiving waters, 4) require similar monitoring, and 5) are more appropriately regulated under a general permit rather than individual permits. A general permit, Order No. 90-31, General Waste Discharge Requirements for the

Factsheet for

Order No. 96-41

April 25, 2002

Discharge of Groundwater Dewatering Waste Discharges to San Diego Bay
or

Tributaries Thereto, San Diego County (NPDES No. CA0108707), which was adopted April 23, 1990, regulates the discharge of groundwater dewatering wastes to San Diego Bay. Order No. 96-41 will regulate other discharges of groundwater over 100,000 gallons per day to all receiving waters within the region except discharges to San Diego Bay, or tributaries thereto, unless an individual permit is adopted for a particular discharge.

II. Treatment Facilities and Outfalls

The general NPDES permit contains effluent limitations which may require the application of best available treatment economically achievable for the removal of petroleum products and organic compounds but each project proponent's discharge. The general NPDES permit will require each discharger to certify the adequacy of each component of treatment facilities or a contingency plan prior to initiating a discharge. Each discharger's certification report will contain a requirement-by-requirement analysis, based on accepted engineering practice, of how the contingency plan or process and physical design of the facilities will ensure compliance with the Order. Each discharger's certification report shall also certify that the contingency plan or treatment facilities and appurtenances can be fully operational, as designed, within 24 hours. The design engineer will affix his/her signature and engineering license number to this certification report.

Groundwater may be discharged to a variety of receiving waters or storm drains or other conveyance systems tributary to receiving waters within the region. Because outfalls are not designed to achieve maximum initial dilution and dispersion of discharges, initial dilution factors for discharges to inland surface waters, bays, estuaries, and lagoons are conservatively assumed to equal zero. An initial dilution factor of three is assumed for discharges to the surf zone. The initial dilution factor is based on a preliminary dilution model submitted by Professor Gerhard H. Jirka, School of Civil and Environmental Engineering, Cornell University for a dewatering project for the international treatment facility ocean outfall near Tijuana. This particular model assumes that 1) mixing of the dewatering is primarily controlled by wave-induced turbulence and longshore conditions, 2) 0.55 meter wave height with a 15 second period occurring with a 95 percent exceedance probability, 3) a longshore velocity of 5 to 10 centimeters per second, and 4) a near-shore beach slope of 3 percent. The model results in an initial dilution ratio of 6. Since the model does not represent topographic and wave

conditions throughout the region, the initial dilution factor for discharges to surf zones was halved.

III. Discharge Description

To date, groundwaters of the region have not been adequately characterized for pollutants to provide a general description or prediction of pollutant concentrations in proposed discharges. However, groundwaters in some urban areas are known to be contaminated with petroleum products and solvents due to underground storage tank leaks and pipeline leaks. Discharge of groundwater to receiving waters within the region will be required to comply with the effluent limitations contained in the Order and protect the beneficial uses of the receiving waters.

IV. Receiving Water Description

The region has continuous an ephemeral rivers and streams, bays, estuaries, lagoons, and approximately 85 miles of coastline. No receiving waters covered under the terms and conditions of this Order have been designated an outstanding national resource water by the State Water Resources Control Board. However, Heisler Park Ecological Reserve, located in coastal waters near the City of Laguna Beach, the San Diego-La Jolla Ecological Reserve and the San Diego Marine Life Refuge, located in coastal waters near La Jolla, a community of the City of San Diego, have been designated an Area of Special Biological Significance (ASBS) by the State Water Resource Control Board. The Water Quality Control Plan for Ocean Waters of California (Ocean Plan) contains the following prohibitions applicable to ASBSs:

" Waste shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas."

Order No. 96-41 prohibits the discharge of extraction waste to the above ASBSs.

V. Prohibitions

Order No. 90-49 contains the following prohibitions for discharges covered under the terms and conditions of the Order:

1. The discharge of groundwater extraction waste to a lake or reservoir used for municipal water supply, or tributaries thereto, or in any manner in which the extraction waste may be washed into a municipal water supply, or tributaries thereto, is prohibited unless authorization to discharge in such a manner is obtained from the agency with jurisdiction over the municipal water supply reservoir. The

discharge of treated or untreated sewage or industrial waste to a lake or reservoir used for municipal water supply, or in any manner in which the waste may be washed into a municipal water supply, is prohibited.

2. The discharge of treated or untreated sewage or industrial wastewater to a watercourse or in any manner which may permit it to be washed into a watercourse, is prohibited, except in such cases where the quality of the discharge complies with the receiving waters objectives or an NPDES permit has been issued for the discharge.
3. The discharge of any radiological, chemical or biological warfare agent, or high level radiological waste to surface waters is prohibited.
4. The discharge of wastes tributary or directly to areas designated as being of special biological significance by the State Water Resources Control Board is prohibited. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.
5. The discharge of oil, trash, industrial waste sludge, or other solids directly to a surface water or in any manner which may permit it to be washed into a surface water is prohibited.
6. Odors, vectors, and other nuisances of waste origin beyond the limits of each discharger's facility are prohibited.
7. The discharge of extraction waste shall not cause surface erosion or scouring of aquatic substrates.
8. The discharge of freshwater shall not cause degradation to marine or estuarine environments.

9. The addition of pollutants to extracted groundwater, exclusive of chlorine to control biofouling in treatment systems, is prohibited. The addition of chlorine to any portion of the waste stream is prohibited unless dechlorination facilities or other methods ensure compliance with total chlorine residual effluent concentration limitations contained in the Discharge Specifications of this Order.
10. Discharges of groundwater to surface waters from new permanent^a extraction operations in basins with designated beneficial uses of industrial, agricultural, or municipal and domestic supply are prohibited unless such extracted groundwater is used beneficially. If the user of such extracted groundwater wishes to discharge to surface waters, it shall be the responsibility of the user to obtain an NPDES permit for the discharge.

^a This prohibition does not apply to small dewatering sumps necessary to protect public utilities (e.g., electrical, telephone, municipal sewer pumping stations, and other utilities vital to the public) and which have intermittent discharges. These discharges will be regulated, where necessary, under separate NPDES permits.

"Permanent" groundwater extraction operations shall refer to extraction operations for structures which 1) are not designed or constructed to withstand hydrostatic pressure or do not preclude infiltration of groundwater, and, 2) require removal of groundwater to prevent water infiltration to the structure(s). For purposes of this Order, "new permanent" groundwater extraction operations refers to extraction operations which are initiated after the date of adoption of this Order in cases in which the following conditions apply:

1. If the project proponent has not submitted a complete Report of Waste Discharge (RWD) to the Regional Board for a proposed discharge of extraction operation prior to adoption of this Order, the discharge is considered a discharge from a new permanent groundwater extraction operation and is prohibited unless the groundwaters are used beneficially, unless:
2. Prior to adoption of this Order, the project proponent has applied for the necessary building permits from the proper agencies.

11. The discharge of groundwater extraction waste to enclosed bays, lagoons, and estuaries, or tributaries thereto, is prohibited unless the discharger demonstrates to the satisfaction of the Executive Officer that alternative disposal sites (e.g., surf zone) are not practicable as required in Reporting Requirements No. E. 14.
12. The discharge of groundwater extraction waste to any surface water, from a specific groundwater dewatering or remediation project after 1) the expiration date specified in this Order, 2) the completion date of construction or repair of structures requiring groundwater dewatering, or 3) the date groundwater pollutant concentration(s) have been reduced to the satisfaction of the Executive Officer, whichever date is earliest, is prohibited.
13. The discharge of groundwater in excess of the flowrate specified in each discharger's authorization letter from the Executive Officer is prohibited unless the discharger obtains a revised discharge authorization letter or an individual permit authorizing an increased flowrate.
14. The discharge of groundwater extraction waste to a stormwater conveyance system without notifying and receiving authorization from the agency having jurisdiction over the stormwater conveyance system is prohibited.
15. Discharges of groundwater containing pesticides with concentrations detectable within the accuracy of analytical methods prescribed in Standard Methods for the Examination of Water and Wastewater, latest edition, or other equivalent methods approved by the Executive Officer, to inland surface waters, is prohibited. Discharges of pesticides not limited herein to marine waters is prohibited.

VI. Basis for Waste Discharge Requirements and Effluent Limitations

Section 402 of the federal Clean Water Act (CWA) gives the United States Environmental Protection Agency the authority to issue NPDES permits for discharges into navigable waters and to prescribe conditions for such permits necessary to carry out the provisions of the CWA. In California, EPA has delegated this authority to the State of California.

On June 8, 1989 the State Water Resources Control Board (hereinafter State Board), submitted an application to the United States Environmental Protection Agency requesting revisions to its NPDES program in accordance with 40 CFR 123.62 and 403.10. The application included a request to add general permit authority to its approved NPDES program. States may request authority to issue general permits pursuant to 40 CFR 122.28. On September 22, 1989, the EPA, Region IX, approved the State Board's request and granted authorization for the State's issuance of general NPDES permits.

40 CFR 122.28 provides for the issuance of general permits to regulate discharges of waste which result from similar operations, are the same type of waste, require the same effluent limitations, require similar monitoring, and are more appropriately regulated under a general permit rather than individual permits.

In order to protect the beneficial uses of groundwaters and receiving waters in the region as a result of escalating numbers of groundwater extraction waste discharges, the Order prohibits discharges of extraction waste from new permanent groundwater extraction operations unless the groundwaters are used beneficially. The prohibition of discharges from new permanent groundwater extraction operations to receiving waters will reduce the waste of groundwater as intended by Article X of the California Constitution and Section 275 of the California Water Code, and may reduce potential number of new permanent discharges as intended by the federal Clean Water Act (Section 101(a)(1)) and the Water Quality Control Policy for Enclosed Bays and Estuaries of California. Article X, Section 2, of the California Constitution requires that "water resources of the State be put to beneficial use to the fullest extent of which they are capable and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. " Water Code Section 275 states "The department and board shall take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste, unreasonable use , unreasonable method of use, or unreasonable method of diversion of water in this state."

The practice of permanent groundwater extraction for the purpose of

protecting underground parking or other structures and the subsequent discharge of the groundwaters, without using the groundwaters to the "fullest extent to which they are capable," as required by the California Constitution, is and unreasonable use of such waters if the waters have designated beneficial uses. Article X of the California Constitution and Section 275 of the Water Code are additional bases for prohibiting permanent groundwater discharges that do not utilize the groundwaters to the fullest extent to which they are capable. Reporting Requirement No. E.14f of Order No. 96-41 requires that potential dischargers of groundwater seek alternative uses of such waters.

Section 402(a)(1) of the Clean Water Act authorizes the issuance of best available technology effluent limitations in NPDES permits using best professional judgement. Thus, using best professional judgement, best available technology economically achievable for the removal of volatile and semi-volatile organic compounds and analytical practical quantitation levels are the basis for effluent limitations for these compounds in the Discharge Specifications of the Order.

The Order requires that groundwater discharged to bays and estuaries must not contain pollutants in excess of applicable receiving water quality objectives contained in Table B of the Water Quality Control Plan for Ocean Waters of California, 1990 or effluent limitations based on achievable concentrations using best available technology (BAT), whichever results in a lower effluent concentration. Effluent limitations based on BAT are equal to or less than the practical quantitation level. Since the assumed initial dilution factor for the discharge is zero, a discharge could not caused an excursion from numeric receiving water quality objectives for Table B objectives if the discharge is in compliance with the effluent limitations contained in the Order. Likewise, discharges to the surf zone cannot cause excursions from water quality objectives based on the preceding and assuming that the dilution factor will always be greater than three.

For discharges to inland surface waters, effluent limitations are based on the EPA water quality criteria for the protection of aquatic species, the EPA water quality criteria for the protection of human health, effluent concentrations achievable using best available technology, or, in the case where the receiving water is designated potable or municipal supply waters, maximum contaminant levels for municipal waters established by the California Department of Health Services. Since the assumed initial dilution factor for the discharge is zero and a mixing zone is not allowed, a discharge could not cause an excursion from numeric receiving water quality objectives if the discharge is in compliance with the effluent limitations contained in the Order.

No evidence that groundwaters in the region contain biocides, dioxins, or radiation has been found to date. However, discharges of pesticides

in detectable concentrations to inland surface waters is prohibited by the Comprehensive Water Quality Control Plan Report, San Diego Basin (9) and discharges of pesticides to inland surface waters is prohibited in the Order.

The State Water Resources Control Board (hereinafter State Board) adopted a Water Quality Control Policy for Enclosed Bays and Estuaries of California (Bays and Estuaries Policy) on May 16, 1974. The policy established water quality principles, guidelines, effluent quality requirements and prohibitions to govern the disposal of wastes in the enclosed bays and estuaries of California.

The discharge of extraction waste as limited by the permit will not conflict with the Water Quality Control Policy for the Enclosed Bays and Estuaries of California provided that discharges comply with the Discharge Specifications contained in the Order and the discharge is limited in duration.

Specific rationales for each of the effluent limitations contained in the permit are as follows:

1. Extraction DISCHARGES TO BAYS AND HARBORS

The discharge of groundwater extraction waste to Mission Bay, Oceanside Harbor, Del Mar Boat Basin, and Dana Point Harbor containing pollutants in excess of the following effluent limitations is prohibited:

Constituent	Unit	6-Month Median ¹	30-day Average ²	Daily Maximum ³	Instantaneous Maximum ⁴	Basis ⁵
Settleable Solids	ml/L	---	0.1	---	0.2	BPJ ⁶
Total Suspended Solids	mg/L	---	30	---	50	"
Hydrogen Sulfide	μg/L	---	2	4	10	EPA ⁷
Total Residual Chlorine (TRC) ⁹	μg/L	2	---	8	60	OP ⁸
pH	Units	Within the limits of 6.0 to 9.0 at all times.				OP ⁸
Benzene	μg/L	---	---	---	5	BPJ/BAT ¹⁰
Ethylbenzene	μg/L	---	---	---	5	"
Toluene	μg/L	---	---	---	5	"
Xylene	μg/L	---	---	---	5	"
Total Petroleum Hydrocarbons	mg/L	---	---	---	0.5	BPJ/BAT ¹⁰
Arsenic	μg/L	8	---	32	80	OP ⁸
Cadmium	μg/L	1	---	4	10	"
Chromium (hexavalent) ¹¹	μg/L	2	---	8	20	"
Copper	μg/L	3	---	12	30	"
Lead	μg/L	2	---	8	20	"
Mercury	μg/L	0.04	---	0.16	0.4	"
Nickel	μg/L	5	---	20	50	"
Selenium	μg/L	15	---	60	150	"
Silver	μg/L	0.7	---	2.8	7	"
Zinc	μg/L	20	---	80	200	"
Cyanide ¹²	μg/L	1	---	4	10	"
Phenolic Compounds (non-chlorinated)	μg/L	10	---	120	300	"
Chlorinated Phenolics	μg/L	1	---	4	10	"
Endosulfan	ng/L	9	---	18	27	"
Endrin	ng/L	2	---	4	6	"
HCH ¹³	ng/L	4	---	8	12	"
acrolein	μg/L	---	---	---	10	BPJ/BAT ¹⁰
antimony	mg/L	---	1.2	---	---	OP ⁸
bis(2-chloroethoxy) methane	μg/L	---	4.4	---	---	"
bis(2-chloroisopropyl) ether	μg/L	---	---	---	10	BPJ/BAT ¹⁰
chlorobenzene	μg/L	---	---	---	5	"
chromium (III)	mg/L	---	190	---	---	OP ⁸
di-n-butyl phthalate	μg/L	---	---	---	10	BPJ/BAT ¹⁰
dichlorobenzenes ¹⁴	μg/L	---	---	---	10	"
1,1-dichloroethylene	μg/L	---	---	---	5	"
diethyl phthalate	mg/L	---	---	---	10	"
dimethyl phthalate	μg/L	---	---	---	10	"
4,6-dinitro-2-methylphenol	μg/L	---	---	---	10	"

Constituent	Unit	6-Month Median ¹	30-day Average ²	Daily Maximum ³	Instantaneous Maximum ⁴	Basis ⁵
2,4-dinitrophenol	µg/L	---	4.0	---	---	op ⁸
fluoranthene	µg/L	---	---	---	10	BPJ/BAT ¹⁰
hexachlorocyclopentadiene	µg/L	---	---	---	10	"
isophorone	µg/L	---	---	---	10	"
nitrobenzene	µg/L	---	4.9	---	---	op ⁸
thallium	µg/L	---	14	---	---	"
1,1,2,2-tetrachloroethane	µg/L	---	---	---	5	BPJ/BAT ¹⁰
tributyltin	ng/L	---	1.4	---	---	"
1,1,1-trichloroethane	µg/L	---	---	---	5	BPJ/BAT ¹⁰
1,1,2-trichloroethane	µg/L	---	---	---	5	"
acrylonitrile	µg/L	---	0.10	---	---	op ⁸
aldrin	ng/L	---	0.022	---	---	"
benzidine	ng/L	---	0.069	---	---	"
beryllium	ng/L	---	33	---	---	"
bis(2-chloroethyl) ether	µg/L	---	0.045	---	---	op ⁸
bis(2-ethylhexyl) phthalate	µg/L	---	3.5	---	---	"
carbon tetrachloride	µg/L	---	0.9	---	---	"
chlordane ¹⁵	ng/L	---	0.023	---	---	"
chloroform	µg/L	---	---	---	5	BPJ/BAT ¹⁰
DDT ¹⁶	ng/L	---	0.17	---	---	op ⁸
1,4-dichlorobenzene	µg/L	---	---	---	10	BPJ/BAT ¹⁰
3,3-dichlorobenzidine	ng/L	---	8.1	---	---	op ⁸
1,2-dichloroethane	µg/L	---	---	---	5	BPJ/BAT ¹⁰
dichloromethane	µg/L	---	---	---	5	"
1,3-dichloropropene	µg/L	---	---	---	5	"
dielddrin	ng/L	---	0.04	---	---	op ⁸
2,4-dinitrotoluene	µg/L	---	2.6	---	---	"
1,2-diphenylhydrazine	µg/L	---	0.16	---	---	"
halomethanes ¹⁷	µg/L	---	---	---	5	BPJ/BAT ¹⁰
heptachlor ¹⁸	ng/L	---	0.72	---	---	op ⁸
hexachlorobenzene	ng/L	---	0.21	---	---	"
hexachlorobutadiene	µg/L	---	---	---	10	BPJ/BAT ¹⁰
hexachloroethane	µg/L	---	2.5	---	---	op ⁸
N-nItrosodimethylamine	µg/L	---	7.3	---	---	"
N-nitrosodiphenylamine	µg/L	---	2.5	---	---	"
PAHs ¹⁹	ng/L	---	8.8	---	---	"
PCBs ²⁰	ng/L	---	0.019	---	---	"
TCDD equivalents ²¹	pg/L	---	0.004	---	---	"
tetrachloroethylene	µg/L	---	---	---	5	BPJ/BAT ¹⁰
toxaphene	ng/L	---	0.21	---	---	op ⁸
trichloroethylene	µg/L	---	---	---	5	BPJ/BAT ¹⁰
2,4,6-trichlorophenol	µg/L	---	0.29	---	---	op ⁸
vinyl chloride	µg/L	---	---	---	5	BPJ/BAT ¹⁰
Acute Toxicity ²²	TUa	---	---	---	0.59	BPJ ⁶
Chronic Toxicity ²³	TUc	---	---	1	---	op ⁸

Constituent	Unit	6-Month Median ¹	30-day Average ²	Daily Maximum ³	Instantaneous Maximum ⁴	Basis ⁵
Remaining Volatiles	µg/L	---	---	---	5	BPJ/BAT ¹⁰
Remaining Base/Neutrals	µg/L	---	---	---	10	"
Dissolved Oxygen	mg/L	Shall not be less than 5.0 at any time.				BPJ ⁶
Turbidity	NTU	Shall not exceed the turbidity of the receiving water.				"

Note: ml/L = milliliters per liter, mg/L = milligrams per liter

µg/L = micrograms per liter, TUa = acute toxicity units

TUc = chronic toxicity units, NTU = Nephelometric Turbidity Units

2. DISCHARGES TO LAGOONS/ESTUARIES

Extraction discharges to the saline²⁶ lagoons and estuaries of the region shall comply with the effluent limitations listed in Discharge Specification B.1 above for discharges to bays and harbors, excluding the effluent limitation for pH, and the following effluent limitations:

Constituent	Unit	6-Month Median ¹	30-day Average ²	Daily Maximum ³	Instantaneous Maximum ⁴	Basis ⁵
Total Nitrogen ²⁷	µg/L	---	1.0	---	2.0	BPJ/BAT ¹⁰
fluoranthene	µg/L	---	0.1	---	0.2	"
pH	Units	Within the limits of 7.0 to 8.5 at all times.				BPJ ⁶

Note: mg/L = milligrams per liter

3. Extraction DISCHARGES TO SURF ZONES²⁹

The discharge of groundwater extraction waste to the surf zone containing pollutants in excess of the following effluent limitations is prohibited:

Constituent	Unit	6-Month Median ¹	30-day Average ²	Daily Maximum ³	Instantaneous Maximum ⁴	Basis ⁵
Settleable Solids	ml/L	---	1	---	2	BPJ ⁶
Total Suspended Solids	mg/L	---	60	---	100	"
Hydrogen Sulfide	µg/L	---	8	16	40	"
Total Residual Chlorine (TRC) ⁹	µg/L	8	---	32	240	OP ⁸
pH	Units	Within the limits of 6.0 to 9.0 at all times.				"

Constituent	Unit	6-Month Median ¹	30-day Average ²	Daily Maximum ³	Instantaneous Maximum ⁴	Basis ⁵
Benzene	µg/L	---	---	---	20	BPJ/BAT ¹⁰
Ethylbenzene	µg/L	---	---	---	20	"
Toluene	µg/L	---	---	---	20	"
Xylene	µg/L	---	---	---	20	"
Total Petroleum Hydrocarbons	mg/L	---	---	---	2.0	"
Arsenic	µg/L	23	---	119	311	OP ⁸
Cadmium	µg/L	4	---	16	40	"
Chromium (hexavalent) ¹¹	µg/L	8	---	32	80	"
Copper	µg/L	6	---	25	114	"
Lead	µg/L	8	---	32	80	"
Mercury	µg/L	0.16	---	0.64	1.6	"
Nickel	µg/L	20	---	80	200	"
Selenium	µg/L	60	---	240	600	"
Silver	µg/L	2.32	---	10.7	28	"
Zinc	µg/L	56	---	296	776	"
Cyanide ¹²	µg/L	4	---	16	40	"
Phenolic Compounds (non- chlorinated)	µg/L	120	---	480	1200	"
Chlorinated Phenolics	µg/L	4	---	16	40	OP ⁸
Endosulfan	ng/L	36	---	72	108	"
Endrin	ng/L	8	---	16	24	"
HCH ¹³	ng/L	16	---	32	48	"
acrolein	µg/L	---	---	---	10	BPJ/BAT ¹⁰
antimony	mg/L	---	4.8	---	---	OP ⁸
bis(2-chloroethoxy) methane	µg/L	---	---	---	10	BPJ/BAT ¹⁰
bis(2-chloroisopropyl) ether	µg/L	---	---	---	10	"
chlorobenzene	µg/L	---	---	---	5	"
chromium (III)	mg/L	---	760	---	---	OP ⁸
di-n-butyl phthalate	µg/L	---	---	---	10	BPJ/BAT ¹⁰
dichlorobenzenes ¹⁴	µg/L	---	---	---	10	"
1,1-dichloroethylene	µg/L	---	---	---	5	"
diethyl phthalate	µg/L	---	---	---	10	BPJ/BAT ¹⁰
dimethyl phthalate	µg/L	---	---	---	10	"
4,6-dinitro-2-methylphenol	µg/L	---	---	---	10	"
2,4-dinitrophenol	µg/L	---	---	---	10	"
fluoranthene	µg/L	---	---	---	10	"
hexachlorocyclopentadiene	µg/L	---	---	---	10	"
isophorone	µg/L	---	---	---	10	"
nitrobenzene	µg/L	---	---	---	10	"
thallium	µg/L	---	5.6	---	---	"
1,1,2,2-tetrachloroethane	µg/L	---	---	---	5	"
tributyltin	ng/L	---	5.6	---	---	OP ⁸
1,1,1-trichloroethane	µg/L	---	---	---	5	BPJ/BAT ¹⁰
1,1,2-trichloroethane	µg/L	---	---	---	5	"

Constituent	Unit	6-Month Median ¹	30-day Average ²	Daily Maximum ³	Instantaneous Maximum ⁴	Basis ⁵
acrylonitrile	µg/L	---	0.40	---	---	OP ⁸
aldrin	ng/L	---	0.09	---	---	"
benzidine	ng/L	---	0.28	---	---	"
beryllium	ng/L	---	132	---	---	"
bis(2-chloroethyl) ether	µg/L	---	0.18	---	---	"
bis(2-ethylhexyl) phthalate	µg/L	---	---	---	10	BPJ/BAT ¹⁰
carbon tetrachloride	µg/L	---	3.6	---	---	"
chlordane ¹⁵	ng/L	---	0.09	---	---	"
chloroform	µg/L	---	0.52	---	5	"
DDT ¹⁶	ng/L	---	0.68	---	---	OP ⁸
1,4-dichlorobenzene	µg/L	---	---	---	10	BPJ/BAT ¹⁰
3,3-dichlorobenzidine	ng/L	---	32.4	---	---	"
1,2-dichloroethane	µg/L	---	---	---	5	"
dichloromethane	µg/L	---	---	---	5	"
1,3-dichloropropene	µg/L	---	---	---	5	"
Dieldrin	ng/L	---	0.04	---	---	OP ⁸
2,4-dinitrotoluene	µg/L	---	2.6	---	---	"
1,2-diphenylhydrazine	µg/L	---	0.16	---	---	"
halomethanes ¹⁷	µg/L	---	---	---	5	BPJ/BAT ¹⁰
heptachlor ¹⁸	ng/L	---	0.72	---	---	OP ⁸
hexachlorobenzene	ng/L	---	0.21	---	---	"
hexachlorobutadiene	µg/L	---	---	---	5	BPJ/BAT ¹⁰
hexachloroethane	µg/L	---	2.5	---	---	"
N-nitrosodimethylamine	µg/L	---	7.3	---	---	"
N-nitrosodiphenylamine	µg/L	---	2.5	---	---	"
PAHs ¹⁹	ng/L	---	8.8	---	---	"
PCBs ²⁰	ng/L	---	0.019	---	---	"
TCDD equivalents ²¹	pg/L	---	0.004	---	---	"
tetrachloroethylene	µg/L	---	---	---	5	BPJ/BAT ¹⁰
toxaphene	ng/L	---	0.21	---	---	OP ⁸
trichloroethylene	µg/L	---	---	---	5	BPJ/BAT ¹⁰
2,4,6-trichlorophenol	µg/L	---	0.29	---	---	OP ⁸
vinyl chloride	µg/L	---	---	---	5	BPJ/BAT ¹⁰
Acute Toxicity ²²	TUa	---	---	---	0.59	OP ⁸
Chronic Toxicity ²³	TUc	---	---	1	---	OP ⁸
Remaining Volatiles ²⁴	µg/L	---	---	---	5	BPJ/BAT ¹⁰
Remaining Base/Neutrals ²⁵	µg/L	---	---	---	10	"
Dissolved Oxygen	mg/L	Shall not be less than 5.0 at any time.---				OP ⁶
Turbidity	NTU	Shall not exceed the turbidity of the receiving outside the surf zone				"

Note: ml/L = milliliters per liter, mg/L = milligrams per liter

µg/L = micrograms per liter, pg/L = picograms per liter

TUa = acute toxicity units, TUc = chronic toxicity units

4. Extraction DISCHARGES TO INLAND WATERS^b

The discharge of groundwater extraction waste to inland surface waters containing pollutants in excess of the following effluent limitations is prohibited:

- A. Extraction waste discharges to any inland surface waters shall not contain pollutants in excess of the following effluent limitations:

GENERAL CONSTITUENTS DISCHARGED TO INLAND SURFACE WATERS

Constituent	Unit	30-day Average ²	Daily Maximum ³	Instantaneous Maximum ⁴	Basis ⁵
Settleable Solids	ml/L	0.1	---	0.2	BPJ ⁶
Total Suspended Solids	mg/L	30	---	50	"
Percent Sodium	%	---	---	60	BP ²⁸
Total Nitrogen ²⁷	mg/L	1.0	---	2.0	"
Total Phosphorus ²⁷	mg/L	0.1	---	0.2	"
Methylene Blue Active Substances	mg/L	---	---	0.5	"
Turbidity	NTU	Shall not exceed the turbidity of the receiving water at any time.			BPJ ⁶
Fluoride	mg/L	---	---	1.0	BP ²⁸
Hydrogen Sulfide	μg/L	2	4	10	BPJ ⁶
Selenium	μg/L	---	10	35	EPA ⁷
Total Residual Chloride (TRC) ⁹	μg/L	2	8	10	BPJ ⁶
Total Petroleum Hydrocarbons	mg/L	---	---	0.5	BPJ/BAT ¹⁰
Acute Toxicity ²²	TUa	---	---	0.59	BPJ ⁶
Chronic Toxicity ²³	TUc	---	1	---	"
pH	Units	Within the limits of 6.5 and 8.5 at all times.			BP ²⁸
Dissolved Oxygen	mg/L	Shall not be less than 5.0 at any time in waters with designated arm fresh-water habitat beneficial uses or less than 6.0 in waters with cold beneficial uses.			BP ²⁸

^b If the groundwater extraction waste is discharged to an inland surface water tributary to an enclosed bay or estuary and the effluent concentration limitation for discharges to enclosed bays and estuaries is less than the effluent concentration limitation for discharges to inland surface waters, the discharge shall not contain pollutants in excess of the effluent concentration limitation for a discharge to an enclosed bay or estuary. (The discharge shall comply with the lower of the two effluent pollutant concentration limitations.)

Note: ml/L = milliliters per liter, mg/L = milligrams per liter
 $\mu\text{g/L}$ = micrograms per liter, TUa = acute toxicity units
 TUc = chronic toxicity units

- B. Discharges of volatile, semi-volatile, and metal/metalloid compounds to surface waters having actual or potential beneficial uses of municipal and potable³⁰ supply shall not contain pollutants in excess of the effluent concentration limits listed below for those receiving waters. Discharges to surface waters which are not potential or actual municipal or potable water supply waters shall not contain pollutants in excess of the effluent limitations listed below for those receiving waters.

VOLATILE CONSTITUENTS DISCHARGE TO INLAND SURFACE WATERS:

Beneficial Use:		Municipal/Potable Supply		Non-municipal/Non-potable		
		Instantaneous		Instantaneous		
Constituent	Unit	Maximum ⁴	Basis ⁵	Unit	Maximum ⁴	Basis ⁵
Acrylonitrile	$\mu\text{g/L}$	0.06	EPA ⁷	$\mu\text{g/L}$	0.65	EPA ⁷
Benzene	$\mu\text{g/L}$	1.0	DOHS ³¹	$\mu\text{g/L}$	5	BPJ/BAT ¹⁰
Carbon tetrachloride	$\mu\text{g/L}$	0.4	EPA ⁷	$\mu\text{g/L}$	5	"
Chloroform	$\mu\text{g/L}$	0.19	"	$\mu\text{g/L}$	5	"
Dibromochloropropane	$\mu\text{g/L}$	0.2	DOHS ³¹	$\mu\text{g/L}$	0.2	BPJ ⁶
1,2-Dichlorobenzene	Non-detectable ³²			Non-detectable ³²		
1,4-Dichlorobenzene	"			"		
1,2-Dichloroethane	$\mu\text{g/L}$	0.5	DOHS ³¹	$\mu\text{g/L}$	5	BPJ/BAT ¹⁰
1,1-Dichloroethylene	$\mu\text{g/L}$	0.033	EPA ⁷	$\mu\text{g/L}$	1.85	EPA ⁷
1,2-Dichloropropane	Non-detectable ³²			Non-detectable ³²		
1,3-Dichloropropene	"			"		
Ethylbenzene	$\mu\text{g/L}$	5	BPJ/BAT ¹⁰	$\mu\text{g/L}$	5	BPJ/BAT ¹⁰
Ethylene Dibromide	$\mu\text{g/L}$	0.02	DOHS ³¹	$\mu\text{g/L}$	0.02	BPJ ⁶
1,1,2,2-	Non-detectable ³²			Non-detectable ³²		
Tetrachloroethane						
Tetrachloroethylene	$\mu\text{g/L}$	4	DOHS ³¹	$\mu\text{g/L}$	5	BPJ/BAT ¹⁰
Toluene	$\mu\text{g/L}$	5	BPJ/BAT ¹⁰	$\mu\text{g/L}$	5	"
1,1,2-Trichloro-	$\mu\text{g/L}$	0.6	EPA ⁷	$\mu\text{g/L}$	5	"
ethane						
Trichloroethylene	$\mu\text{g/L}$	3	"	$\mu\text{g/L}$	5	"
Vinyl Chloride	$\mu\text{g/L}$	0.5	DOHS ³¹	$\mu\text{g/L}$	5	"
Xylene	$\mu\text{g/L}$	5	BPJ/BAT ¹⁰	$\mu\text{g/L}$	5	"
Remaining Volatiles ²⁵	$\mu\text{g/L}$	5	"	$\mu\text{g/L}$	5	"

Beneficial Use:		Municipal/Potable Supply		Non-municipal/Non-potable		
		Instantaneous		Instantaneous		
Constituent	Unit	Maximum ⁴	Basis ⁵	Unit	Maximum ⁴	Basis ⁵
Chlorinated Phenolics	µg/L	1	DOHS ³¹	µg/L	10	BPJ/BAT ¹⁰
benzidine	ng/L	0.12	EPA ⁷	ng/L	0.53	EPA ⁷
(Bis) 2-Chloroethyl	µg/L	0.03	"	µg/L	1.36	"
(Bis) Chloromethyl Ether	pg/L	0.004	"	ng/L	1.84	"
2,4-Dinitrotoluene	µg/L	0.11	"	µg/L	9.1	"
Diphenylhydrazine	ng/L	42	"	µg/L	0.56	"
Hexachlorobenzene	ng/L	0.72	"	ng/L	0.74	"
Hexachlorobutadiene	µg/L	0.45	"	µg/L	10	BPJ/BAT ¹⁰
N-Nitrosodibutylamine	ng/L	6.4	"	ng/L	587	EPA ⁷
N-Nitrosodimethylamine	ng/L	1.4	"	µg/L	10	BPJ/BAT ¹⁰
N-Nitrosodiphenylamine	µg/L	4.9	"	µg/L	10	"
N-Nitrosopyrrolidine	ng/L	16	"	µg/L	10	"
PCBs	ng/L	0.08	"	ng/L	0.08	EPA ⁷
1,2,4-Trichlorobenzene	Non-detectable ³²			Non-detectable ³²		
Remaining Base/Neutral Compounds ²⁶	µg/L	10	BPJ/BAT ¹⁰	µg/L	10	BPJ/BAT ¹⁰

METALS/METALLOID CONSTITUENTS DISCHARGED TO INLAND SURFACE WATERS:

Constituent	Unit	4-Day Average ³³	Daily Maximum ³	Instantaneous Maximum ⁴	Basis ⁵
Arsenic	µg/L	---	---	17.5	EPA ⁷
Beryllium	ng/L	---	---	5.3	"
Cadmium	µg/L	(a)	---	(a)	"
Chromium(III) ¹¹	mg/L	---	---	170	"
Chromium (hexavalent) ¹¹	µg/L	11	---	16	"
Copper	µg/L	(b)	---	(b)	"
Cyanide ¹²	µg/L	4.2	---	33	"
Iron**	mg/L	---	---	0.3	"
Lead	µg/L	(c)	---	(c)	"
Manganese**	mg/L	---	---	0.05	"
Mercury	µg/L	0.012	---	0.144	"
Nickel	µg/L	(d)	---	(d)	"
Silver	µg/L	(e)	---	(e)	"
Zinc	µg/L	---	47	200	"
Thallium	µg/L	---	---	13	"

(a) - (e) Effluent metal concentrations for these metals are a function of water hardness and the standard for the protection of aquatic species or human health and shall be calculated as follows:

4-Hour Average ($\mu\text{g/L}$) Instantaneous Maximum ($\mu\text{g/L}$)*

(a) Cadmium:	e ^{(0.7852[\ln(\text{hardness})]-3.49)}	e ^{(1.128[\ln(\text{hardness})]-3.828)}	or 10
(b) Copper:	e ^{(0.8545[\ln(\text{hardness})]-1.465)}	e ^{(0.9422[\ln(\text{hardness})]-1.464)}	
(c) Lead:	e ^{(1.273[\ln(\text{hardness})]-4.705)}	e ^{(1.273[\ln(\text{hardness})]-1.46)}	or 50
(d) Nickel:	e ^{(0.76[\ln(\text{hardness})]+1.06)}	e ^{(0.76[\ln(\text{hardness})]+4.02)}	or 13.4
(e) Silver:	---	e ^{(1.72[\ln(\text{hardness})]-6.52)}	or 50

*(Where two values are given for an instantaneous maximum limitation, the effluent limitation shall be the lessor of the two values for discharges to waters designated potable and municipal supply.

**For the Mission San Diego (7.11) and Sycamore Canyon (7.121) Hydrographic Subareas, the effluent limitation for iron shall be 1.0 mg/L and the effluent limitation for manganese shall be 1.0 mg/L. Sycamore Canyon Subarea, a portion of the Santee Hydrologic Subarea, includes the watersheds of the following north-south trending canyons: Oak Creek, Spring Canyon, Little Sycamore Canyon, Quail Canyon, and Sycamore Canyon. The Sycamore Canyon Subarea extends eastward from the Mission San Diego HSA to the confluence of the San Diego River and Forester Creek, immediately south of the Santee Lakes.

VII. Antidegradation Policies

Pursuant to 40 CFR 131.12 and State Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (collectively "antidegradation policies"), the Regional Board shall ensure that any increase in pollutant loading to a receiving water meets the requirements stated in the foregoing policies. At a minimum, permitting actions shall be consistent with the following:

- a. Existing instream water uses and the level of water quality necessary to protect existing beneficial uses shall be maintained and protected;
- b. Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, the quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate

important economic or social development in the area in which the waters are located;

- c. Where high quality waters constitute an outstanding national resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected; and
- d. In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Clean Water Act.

The Regional Board, in establishing the requirements contained herein, has taken into consideration the requirements of the State and Federal "antidegradation" policies and has determined that:

- a. The requirements, conditions, Reporting Requirements No. 14 of the Order which requires a discussion of compliance with antidegradation policies, and effluent limitations established in this Order for proposed discharges of groundwater to receiving waters require that the existing beneficial uses and quality of the proposed receiving waters be maintained and protected;
- b. Allowing groundwater extraction waste discharges to receiving waters is often necessary to allow groundwater remediation and accommodate economic development or infrastructure repair or replacement important to the people of the communities of the San Diego region;
- c. No receiving waters covered under the terms and conditions of this Order have been designated an outstanding national resource water by the State Water Resources Control Board. However, Heisler Park Ecological Reserve, located in coastal waters near the City of Laguna Beach, the San Diego-La Jolla Ecological Reserve and the San Diego Marine Life Refuge, located in coastal waters near La Jolla, a community of the City of San Diego, have been designated an Area of Special Biological Significance (ASBS) by the State Water Resources Control Board. The Ocean Plan contains the following prohibition applicable to ASBS:

"Waste shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas."

- d. Thermal discharges potentially impairing water quality are not authorized under the terms and conditions of this Order, thus, Section 316 of the Clean Water Act is not applicable.

In order to show compliance with antidegradation policies, a potential discharger must submit the report required by Reporting Requirements E.14 of the Order which requires discussing compliance with the antidegradation policies.

VIII. Written Comments

Interested persons are invited to submit written comments upon these draft waste discharge requirements. Comments should be submitted either in person or by mail to:

Executive Officer
California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Blvd, Suite B
San Diego, California 92124-1331

All written comments received prior to October 29, 1990 will be considered in the formulation of final determinations.

IX. Public Hearing

The draft Waste Discharge Requirements will be considered by the Regional Board at a public hearing to be held in the Encinitas City Council Chamber, 535 Encinitas boulevard, Suite 100, Encinitas, California at 9:00 am on January 28, 1991.

X. Waste Discharge Requirements Appeals

Any person may petition the State Board to review the decision of the Regional Board regarding the final Waste Discharge Requirements. A petition must be made within 30 days of the Regional Board hearing.

XI. Additional Information

For additional information, interested persons may call Mr. Chris Sandall of the Regional Board Staff at (619) 265-5114 or write to the address listed in Item No. VIII. above.

1. The 6-month median effluent concentration limit shall apply as a moving median of daily values for any 180-day period in which daily values represent flow-weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.
2. The monthly average shall be the arithmetic mean, using the results of analyses of all samples collected during any 30 consecutive calendar day period.
3. The daily maximum effluent concentration limitation shall apply to flow weighted 24 hour composite sample, or grab samples if the duration of the discharge is less than 24 hours.
4. The instantaneous maximum effluent concentration limit shall apply to grab sample determinations.
5. The "Basis" for each numerical effluent pollutant concentration limit necessary to protect the beneficial uses of receiving was derived or obtained from the source indicated in the table. Abbreviations listed in the table are explained in footnote reference nos. 6,7,8,10, and 28 below.
6. "BPJ" = Best Professional Judgement. The application of best professional judgement in establishing effluent limitations is authorized by 40 CFR 125.3. The establishment of BPJ effluent limitations is based on 1) review of effluent limitations for similar operations which discharge wastes to enclosed bays or other receiving waters in the State of California, 2) Compliance with general water quality objectives as required in the Comprehensive Water Quality Control Plan Report, San Diego Basin (9) (Basin Plan), 3) Review of technical support documents Quality Criteria for Water, United State Environmental Protection Agency, if available, for suggested criteria for the protection of aquatic life, 4) the draft document NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document for volatile organic compounds, 5) Water Quality Control Plan, Ocean Waters of California, 1990, 6) Water Quality Control Policy for Enclosed Bays and Estuaries of

California, and, 7) Leaking Underground Storage Tank Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure, State of California, Leaking Underground Fuel Tank Task Force, May 1988.

7. EPA = Environmental Protection Agency's Quality Criteria for Water, United States Environmental Protection Agency, 1986.
8. OP = Ocean Plan (Water Quality Control Plan, Ocean Waters of California, 1988). Effluent limitations for Ocean Plan Table B constituents are derived using a dilution factor of zero for discharges to bays and estuaries, and three for discharges to the surf zone, and the calculations and procedures found in the Ocean Plan, except in the case that best available technology based effluent limitations result in a lower effluent limitation.
9. Total Residual Chlorine: In samples obtained from marine, saline, or other waters containing bromine, total residual chlorine limitations shall apply to total residual oxidants (TRO). The effluent and receiving water quality limitations for chlorine are based on a continuous discharge. Effluent and receiving water quality limitations for total chlorine residual applying to intermittent chlorine discharges not exceeding two hours, shall be determined through the use of the following equation:
$$\log y = -0.33(\log x) + 2.1$$

where y = the effluent and receiving water quality limitation (in $\mu\text{g/L}$) to apply when chlorine is being discharged;
x = the duration of uninterrupted chlorine discharge in minutes.
10. "BPJ/BAT" = The best professional judgement of the best available technology economically achievable for the removal of volatile and semivolatile organic compounds. The proposed effluent limitations for volatile and semivolatile organic compounds are based on BPJ/BAT for the removal of organic constituents as authorized by Section 301(b)(2) of the Clean Water Act. The establishment of the BPJ/BAT effluent limitations is based on 1) economically achievable pollutant removal efficiencies of available treatment technologies, 2) analytical detection limits or practical quantitation levels (PQL) established for organic contaminants in waters, 3) the

draft document NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document for volatile petroleum hydrocarbons, prepared by Harold A. Ball and Kenneth H. Sutherland, United States Environmental Protection Agency, Water Management Division, July 1986, 4) Leaking Underground Storage Tank Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure, State of California, Leaking Underground Fuel Tank Task Force, May 1988, 5) Final NPDES General Permit for Petroleum Fuel Contaminated Ground/Storm Waters in the State of Florida, Federal Register, July 17, 1989, and, 6) Model NPDES Permit for Discharges Resulting From the Cleanup of gasoline Released From Underground Storage Tanks, United States EPA, June 1989.

BAT effluent limitations are technology based and applied at the end-of-pipe; therefore, effluent limitations for volatile and base/neutral compounds are not calculated using an initial dilution factor of 3.

11. The hexavalent and trivalent chromium limits may be met as a total chromium limit. If analytical results for total chromium reveal a total chromium concentration greater than the effluent limitations for hexavalent chromium and the sample has not been analyzed for hexavalent chromium, it will be assumed that hexavalent chromium concentrations are in violation of the effluent limitation.
12. If a discharger can demonstrate to the satisfaction of the Regional Board (subject to EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkaline metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by Standard Methods 412F, G, and H (Standard Methods for the Examination of Water and Wastewater. Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Pollution Control Federation. Most recent edition.)
13. HCH shall mean the sum of heptachlor and heptachlor epoxide.
14. Dichlorobenzene shall mean the sum of 1,2,- and 1,3- dichlorobenzene.

15. Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor, nonachlor-gamma, and oxychlordane.
16. DDT shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.
17. Halomethanes shall mean the sum of bromoform, bromomethane, (methyl bromide), chloromethane (methyl chloride), chlorodibromomethane, and dichlorobromomethane.
18. Heptachlor shall mean the sum of heptachlor and heptachlor epoxide.
19. PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,1,2-indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.
20. PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Arochlor-1016, Arochlor-1221, Arochlor-1232, Arochlor-1242, Arochlor-1248, Arochlor-1254, and Arochlor-1260.
21. TCCD equivalent shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below.

<u>Isomer Group</u>	<u>Toxicity Equivalence Factor</u>
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDD	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8-tetra CDF	0.1
1,2,3,7,8-penta CDF	0.05
2,3,4,7,8-penta CDFs	0.5
2,3,7,8-hexa CCFs	0.01
2,3,7,8-hepta CGFs	0.01
octa CDD	0.001

22. Acute Toxicity Concentration: This parameter shall be used to measure the acceptability of waters for supporting a healthy marine, estuarine, or freshwater biota until improved methods are developed to evaluate biological response.

a. Toxicity Concentration Acute (TUa)

Expressed in Toxicity Units Acute (TUA)

$$Tc (tu) = \frac{100}{96\text{-hr.TLm}\%}$$

b. Median Tolerance Limit (TLm%)

TLm (percent waste giving 50 percent survival of test organisms) shall determined by static or continuous flow aquatic toxicity techniques using standard test species. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the environment, but not as a result of dilution, the TLm may be determined after the test samples are adjusted to remove the influences of those substances.

when it is not possible to measure the 96-hr. TLm due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$Tc (TU) = \frac{\log (100 - S)}{1.7}$$

S = percentage survival in 100 percent waste, if S > 99, Tc shall be reported as zero.

23. Chronic Toxicity (TUC)

Expressed as Toxic Units Chronic (TUC)

$$TUC = 100/NOEL$$

Where NOEL = No Observed Effect Level

The NOEL - is expressed as the the maximum percent effluent or receiving water that causes no observable effect on a test organism as determined by the result of a critical life

stage toxicity test (or chronic toxicity test) listed below.

For discharges to marine waters, a minimum of three test species with approved test protocols shall be used to measure compliance with the chronic toxicity objective. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period, monitoring can be reduced to the most sensitive species. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results.

The following tests shall be used to measure TUc. Other tests may be added to the list when approved by the State Board.

<u>Species</u>	<u>Test Effect</u>	<u>Duration</u>	<u>Reference</u>
red alga, <u>Champia parvula</u>	number of cystocarps	7-9 days	1
giant kelp, <u>Macrocystis</u>	percent germination; germ tube length	48 hours	2
abalone, <u>Haliotis rufescens</u>	abnormal shell development	48 hours	2
oyster, <u>Crassostrea gigas</u> ; mussel, <u>Mytilus edulis</u>	abnormal shell development; percent survival	48 hours	3
urchins, <u>Strongylocentrotus</u> <u>purpuratus</u> . <u>S. franciscanus</u>	percent fertilization	1 hour	4
sand dollar, <u>Dendraster</u> <u>excentricus</u>			
shrimp, <u>Mysidopsis bahia</u>	percent survival; growth; fecundity	7 days	1
silversides, <u>Menidia beryllina</u>	larval growth rate; percent survival	7 days	1

Marine Bioassay References

1. Weber, C.L., W.B. Horning, D.J. Klemm, T.W. Neiheisel, P.A. Lewis, E.L. Robinson, J. Menkedick, and F. Kessler (eds.). 1988. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to marine and estuarine organisms. EPA-600/4-87/028. National Technical Information Service, Springfield, VA.
2. Hunt, J.W., B.S. Anderson, S.L. Turpin, A.R. Conlon, M. Martin, F.H. Palmer, and J.J. Janik. 1989. Experimental Evaluation of Effluent Toxicity Testing Protocols with Giant Kelp, Mysids, Ted Abalone, and Topsmelt. Marine Bioassay Project. Fourth Report. California State Water Resources Control Board, Sacramento.
3. American Society for Testing Materials (ASTM). 1987. Standard Practice for conducting static acute toxicity tests with larvae of four species of bivalve molluscs. Procedure E 724-80. ASTM, Philadelphia, PA.
4. Dinnel, P.J., J. Link, and Q. Stober. 1987. Improved methodology for sea urchin sperm cell bioassay for marine waters. Archives of Environmental Contamination and Toxicity. 16: 23-32.

For discharges to inland surface waters, a minimum of three test species with approved test protocols shall be used measure compliance with the chronic toxicity objective in accordance with the draft California Inland Surface Waters Plan - Water Quality Control Plan for Inland Surface Waters of California, State Water Resources Control Board, 1990. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period, monitoring can reduced to the most sensitive species. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results. Dilution and control waters shall be obtained from an unaffected area of the receiving water.

The following tests shall be used to measure TUC. Other

tests may be added to the list when approved by the State Board or the Executive Officer.

<u>Species</u>	<u>Test Effect</u>	<u>Duration</u>
fathead minnow (<u>Pimephales</u> <u>promelas</u>)	larval survival	7 days
water flea (<u>Cerio-</u> <u>daphnia</u> <u>dubia</u>)	survival; number	7 days
alga (<u>Selanastrumcapricornutum</u>)	growth	4 days

Freshwater Bioassay Reference

Horning, W.B. and C.I. Weber (eds.). 1985. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms. U.S. EPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. EPA/600/4-85/014.

24. "Remaining Volatiles" are those constituents which are not listed in the Discharge Specifications but which are listed in 40 CFR 136.
25. "Remaining Base/Neutrals" are those compounds which are not listed in the Discharge Specifications but are listed in 40 CFR 136.
26. Discharges to lagoons and estuaries consisting of non-saline waters shall comply with the effluent limitations for discharges to inland surface waters. Where questions arise concerning the salinity, or lack thereof, of a receiving water, the Executive Officer shall determine which effluent limitations are applicable.
27. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. Threshold total phosphorus concentrations shall not exceed 0.05 mg/L in any stream at the point where it enters any standing body of water, nor 0.025 mg/L in any standing body of water. A desired goal in order to prevent plant

nuisances in streams and other flowing waters appears to be 0.1 mg/L total phosphorus. These values are not to be exceeded more than 10% of the time unless studies of the specific water body in question clearly show that water quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and upheld. If data are lacking, a ratio of nitrogen:phosphorus = 10:1 shall be used.

28. BP = Basin Plan (Comprehensive Water Quality Control Plan Report, San Diego Basin (9)).
29. Effluent limitations for discharges to the surf zone were obtained assuming an initial dilution factor of three and applying the calculations and procedures found in the Water Quality Control Plan, Ocean Waters of California, 1990, except in cases in which BAT can achieve lower effluent pollutant concentrations. BAT effluent limitations are applied at the "end-of-pipe" and dilution factors are not applicable.
30. The following Hydrographic Units have beneficial uses of municipal and potable supply:
 - 2.10 Ysidora
 - 2.20 Deluz
 - 2.30 Murrieta
 - 2.40 Auld
 - 2.50 Pechanga
 - 2.60 Wilson
 - 2.70 Anza
 - 2.80 Aquanga
 - 2.90 Oakgrove
 - 3.20 Monserate
 - 3.30 Warner
 - 4.30 Agua Hedionda
 - 4.60 Escondido
 - 5.20 Hodges
 - 5.30 San Pasqual
 - 5.40 Santa Maria Valley
 - 5.50 Santa Ysabel
 - 7.10 Lower San Diego (Potential Beneficial Use)
 - 7.20 San Vicente
 - 7.30 El Capitan
 - 7.40 Cuyamaca
 - 9.20 Middle Sweetwater

9.30	Upper Sweetwater
11.30	Barrett Lake
11.40	Monument
11.50	Morena
11.60	Cottonwood
11.70	Cameron

31. DOHS = California Department of Health Services - Maximum Contaminant Levels for municipal water supplies.
32. The compound is used as a pesticide. The Basin Plan prohibits the discharge of pesticides in concentrations detectable within the accuracy of analytical methods prescribed in Standard Methods for the Examination of Water and Wastewater, latest edition.
33. The 4-day average shall be the arithmetic mean of all samples obtain over a consecutive 4-day period.